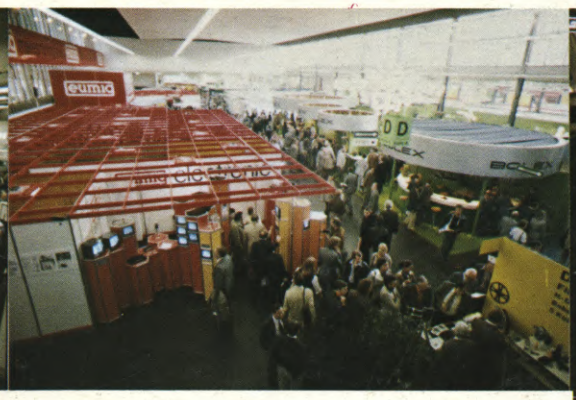
American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

DECEMBER 1978/$1.50



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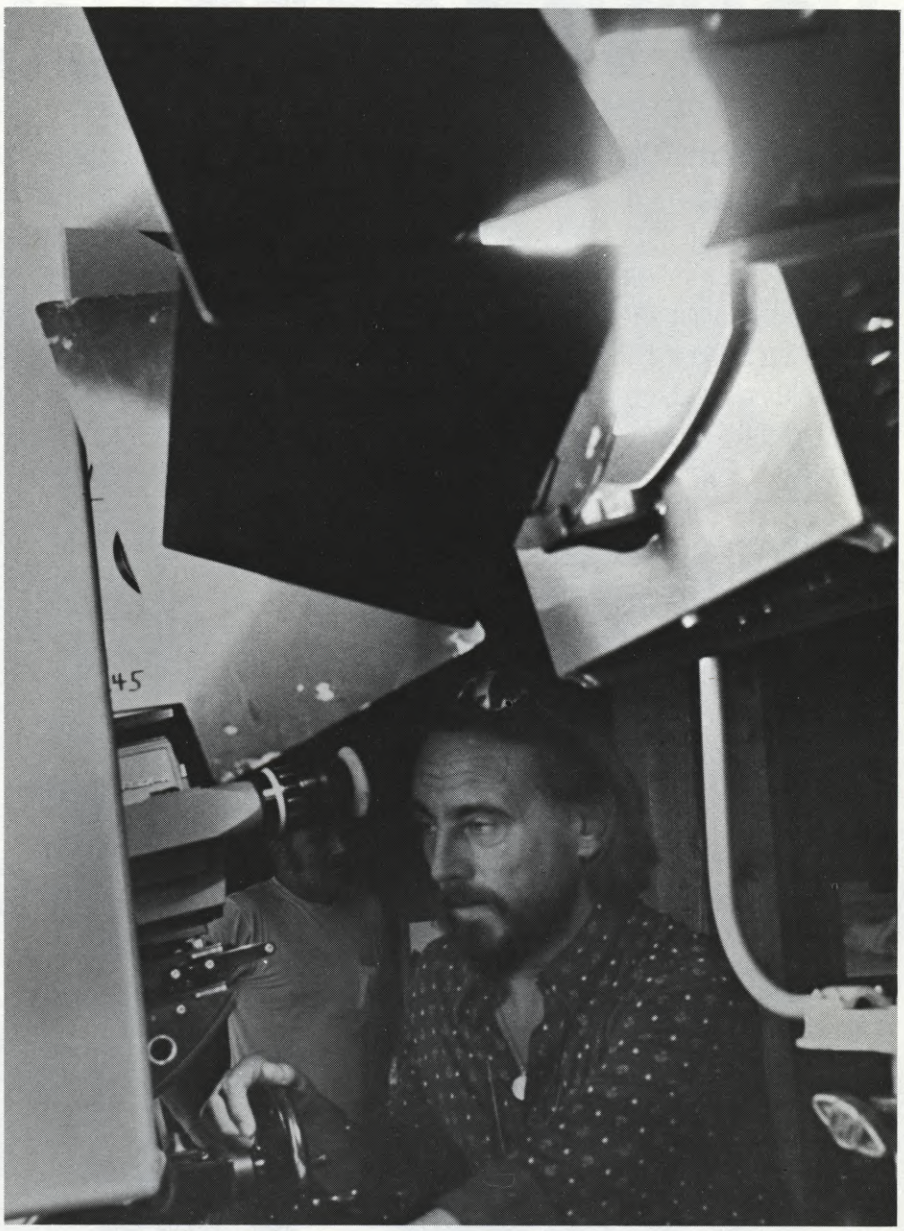
Academy Award winning cinematographer

Vilmos Zsigmond A.S.C.

talks about HMI lights:



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In 1955, Vilmos Zsigmond earned a Master's Degree (MA) in Cinematography at the State University of Theatre and Film Arts in his native Hungary. Although he subsequently rose to the top rank of cinematographers in the nation, Vilmos, like many other freedom-loving Hungarians, escaped and made his way to the U.S. following the abortive revolution of 1956. The only thing he was able to take out of the country with him was a documentary film titled "Revolt in Hungary," which he had filmed during the actual fighting. Because he spoke no English when he arrived in the U.S., had no American contacts, it took nearly eight years until he got his first chance to shoot a feature film again, in Hollywood. His rise from that point has been meteoric, including such films as the Academy Award winner, "Close Encounters of the Third Kind," "Deliverance," *and other boxoffice successes, each of which displays the very special touch of Master Cinematographer Vilmos Zsigmond, A.S.C.*

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American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

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DECEMBER, 1978 **VOL. 59, NO. 12**

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● FEATURE ARTICLES

1168 Report from *PHOTOKINA 1978*
1170 New from Arnold & Richter
1172 The SYSTEM-TON Sound Editing Device
1174 Cinema Products' New "Upright/Flatbed" Editing Console
1178 Five New Lights from Quartzcolor Ianiro
1182 "GSMO" 16mm Sound Camera Soon To Be Available
1186 Lowel Introduces Four New Omni-light Location Lighting Kits at *PHOTOKINA*
1190 The LEE 200 Strobe-free Portable HMI Light
1194 HMI/Tungsten Universal Type Fresnel Spot Light Series
1198 Professional Super-8 at *PHOTOKINA '78*
1202 Bauer S 715 XL Microcomputer Super-8 Sound Camera
1206 The EMP (Envelope: Minimum Possible) 16mm Camera
1210 LTM America Introduces New Luxarc 4000 HMI Light
1211 Two New Cassette Recorders from Super8 Sound, Inc.
1216 New Items of Equipment from Steenbeck

● DEPARTMENTS

1154 What's New
1158 Cinema Workshop
1162 The Bookshelf

ON THE COVER: A montage of views of *PHOTOKINA 1978,* the World Fair of Photography held recently in Cologne, West Germany. The famed photographic trade fair, presented every two years, is held in a vast complex of 12 huge exhibition halls located on the banks of the Rhine River. Cover design and photographs by HERB A. LIGHTMAN.

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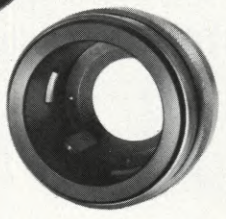
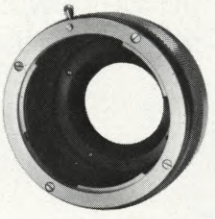
1906 Arri bayonet to CA-1



2902 Arri standard



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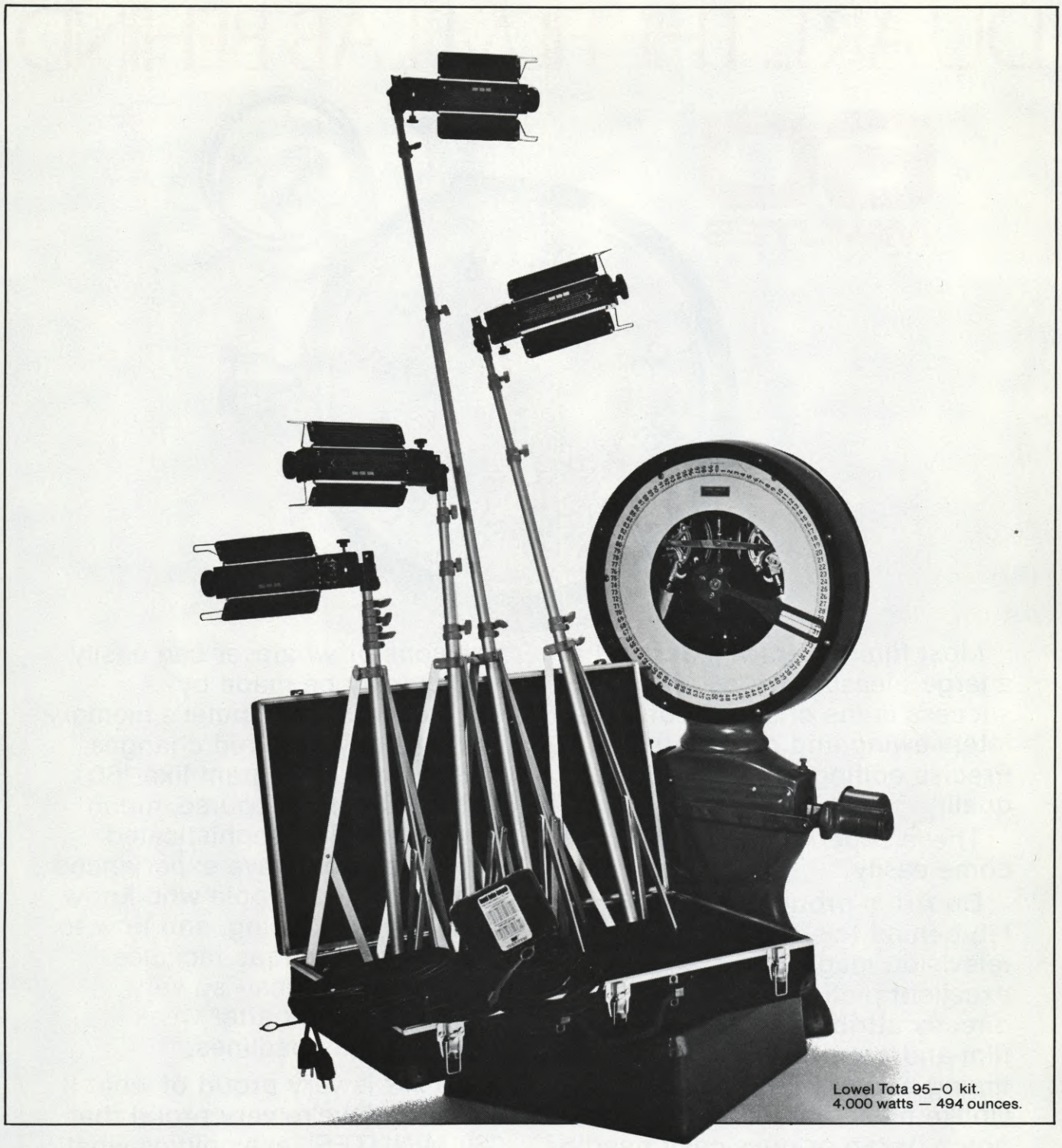

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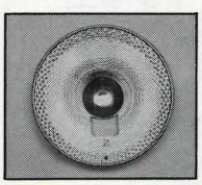

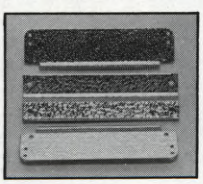

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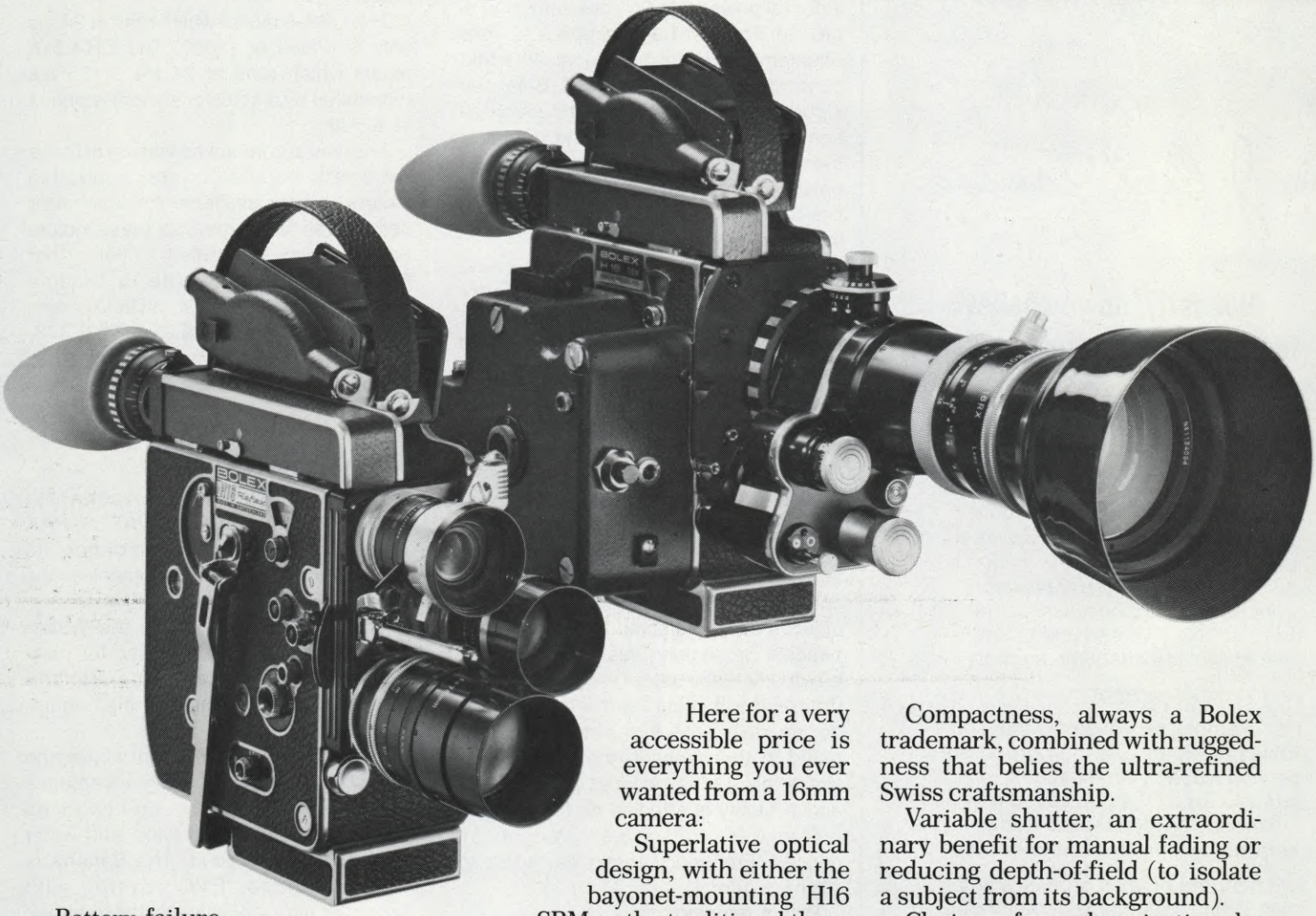

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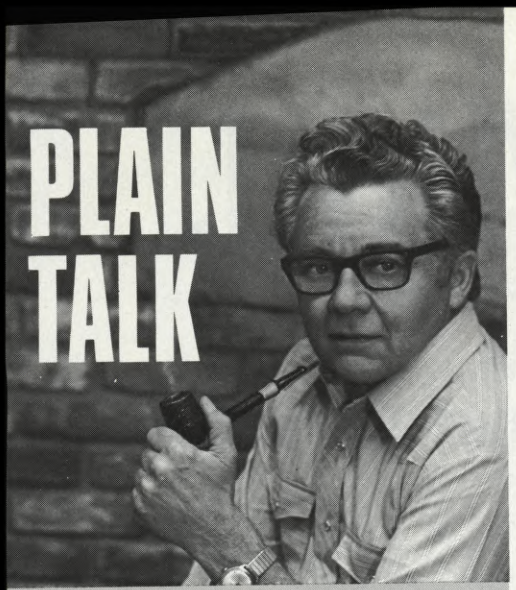

by J. Carl Treise

Honestly, do you believe that everyone is the greatest?

If you accept what you read in most film processor ads, it seems that every manufacturer is the greatest. Honestly, do you believe that stuff?

Some firms brag about their units being made of stainless steel, as if it were a miracle metal. They don't tell you they make the frame work, drive beams, and bases out of metal that's so thin it lacks rigidity and fails to provide adequate support.

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Do yourself a favor. Don't believe everything you read or hear (— including what you find in this column). Check out every processor you're interested in. Talk to the customer who's actually using it. Find out what he thinks of it.

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WHAT'S NEW

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Cinetronics has developed a new compact 4-input microphone mixer. The CM-1 operates on two 9-volt batteries or external power 9 to 20 volts with ± or + ground. The CM-1 also supplies 12 volts phantom power for shotguns. All audio connectors are standard XLR. Balanced inputs have individual low-cut equalization –12db at 50 cycles. The output is switchable to balanced mike level or unbalanced line level. Features VU meter, line-up tone, battery test and LED peak indicator (adjustable).

The CM-1 Mixer offers completely new, non-visual distortion control system for one-man camera and sound work. This unique system for audio level control without VU meter monitoring provides a distortion-free output to a film or video recorder at a consistent level for best audio *without utilizing automatic level control.*

Unlike many mixers which use an intermediate audio stage for a headset monitor, the CM-1 processes the last audio stage of the amplifier before recording through a clipping circuit which induces easily detected distortion in the headset circuit only. This distorted audio is actually 12dbs before the level at which distortion will occur on the tape. By reducing gain until this distortion is not heard in the headset, the operator restores his 12dbs of head room before audio quality is affected on the tape.

Size 6.5″ x 2″ x 3.5″. Weight: 31 ounces. Frequency response: 40Hz to 18Khz ± 1db.

Patent pending.

For further information, contact: CINETRONICS, 12231 Roscoe Boulevard. Sun Valley, California 91352. Tel: (213) 767-4874.

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*Banana is a trademark of Penn Mfg., P.O. Box 45121, Los Angeles, CA 90045.

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Continued on Page 1246

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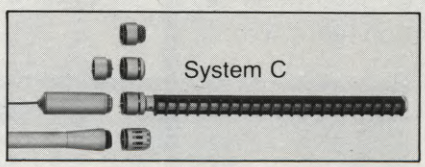

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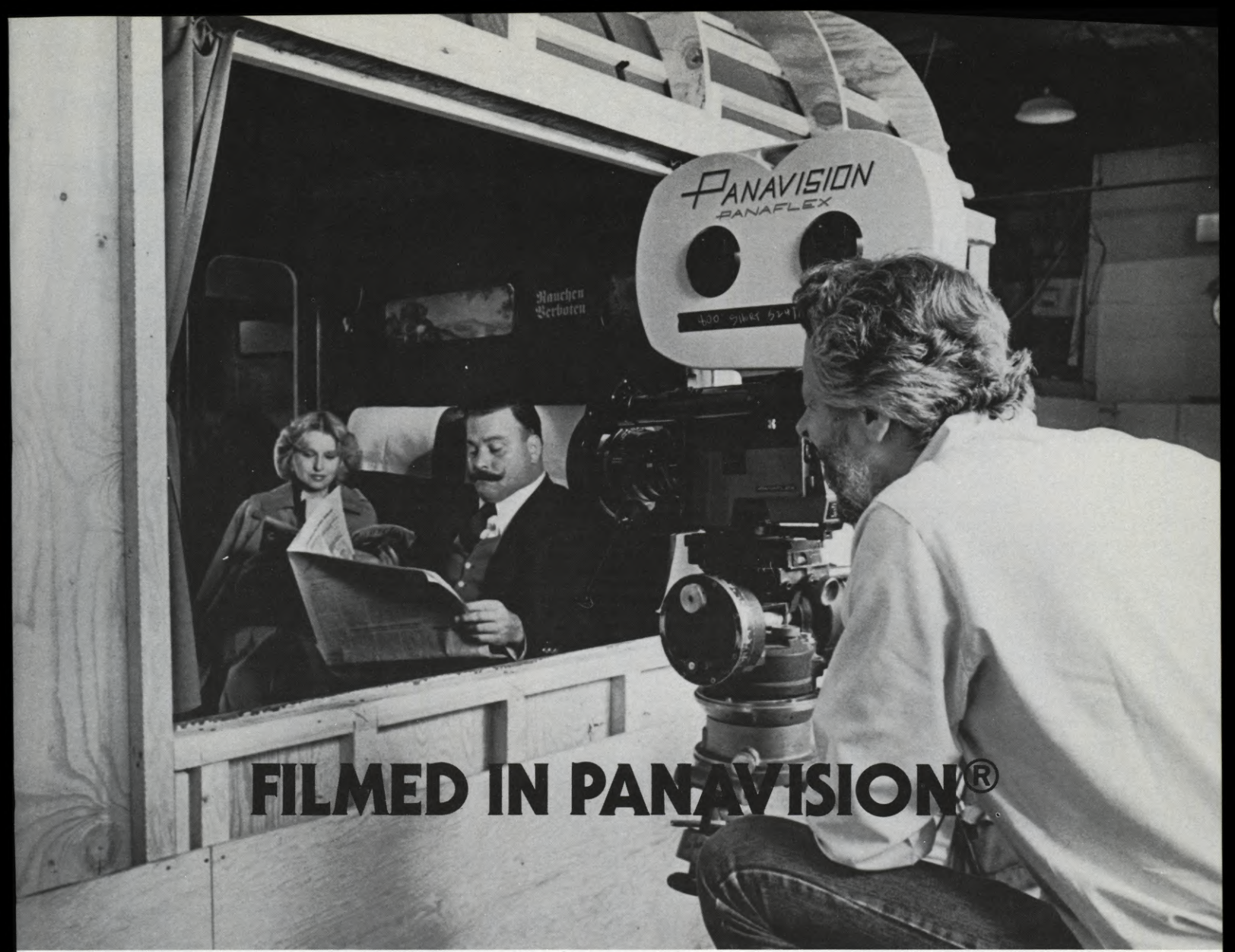

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CINEMA WORKSHOP

By ANTON WILSON

PILOTONES

The pilotone sync signal has gone through several stages of evolution before the industry standardized on the present neo-pilotone system. The neo-pilotone technique consists of a dual "push/pull" head arrangement, (FIGURE 1). Unlike the earlier systems, these head gaps are perfectly perpendicular to tape travel, as are the audio heads. The trick is that the two small head gaps are precisely on the same line and wound with opposing polarity. When one is positive the other is negative. The impulses left on the tape are likewise equal but opposite. The audio head, because it spans the full width of the tape, reproduces these two sets of impulses simultaneously, which causes them to cancel each other out, yielding no sync pulses at all. Only the sync head can reproduce the pilotone signal, due to its dual gap inverted design. In the same way the neo-pilotone head cannot reproduce the audio signal because the inverse polarity causes the audio signals to cancel.

The neo-pilotone system works like a charm and by the mid-sixties virtually all manufacturers of ¼" recorders adopted the system. Transfer and sound studios installed the proper neo-pilotone resolving systems and it appeared that stability had finally come to motion picture synchronization. However, life is never that simple. Enter the era of stereo and the corresponding two-track recorder.

Remember that the principal of the neo-pilotone isolation was the fact that the audio head read the two impulse tracks simultaneously causing them to cancel. Now with the two track head, one neo-pilot track falls into the left channel while the other is reproduced by the right. There is no cancellation (unless, of course, the two channels are mixed into mono with exactly equal proportions). The 60 Hz or 50 Hz pilot signal will be blended into the audio signal, rendering it useless.

Clearly a new system had to be devised for the two-track recorders, which brings us finally to the main topic this month. As I had argued many months ago, the two-track recorder offers many decided advantages over the more conventional mono units. While the motion picture community in general was rather reluctant to part with their old standby, the percentage of two-track recorders has slowly but steadily increased, and now it appears that the video industry is swinging very much in the favor of the two-track machines. All this means headaches for the audio houses, because there are now three different types of pilotone systems and none are compatible with each other.

There is a space between the two audio tracks to prevent cross-talk between the two channels (FIGURE 2). This was the most logical place to lay down the sync track. Both Nagra and Stellavox use a third narrow track in this area for the pilot signal. However, it would be too easy for these two companies to use the same technique.

Stellavox chose the most direct method and put the 60 Hz or 50 Hz pilot signal right down the middle of the tape between the audio tracks. Nagra, on the other hand, was concerned that the relatively low frequency sync signals might bleed into the closely adjoining audio tracks. Because higher frequencies have less of a tendency to bleed, the Nagra technique employs a 13,500 Hz carrier frequency which is frequency modulated with the pilot signal. The resulting signal on the tape thus deviates from approximately 8,000 Hz to 19,000 Hz. In addition to recording the pilot signal, this center track can record audio cues in the 0-2,500 Hz region.

What all this boils down to is this: an audio tape must be played back and transferred on the same type of recorder as it was recorded upon. Tapes must be labeled clearly with the type (mono or stereo) and brand of the recorder. If this advice is not followed, the following problems will arise:

A—Nagra Stereo tape reproduced on a mono system: high-pitched whine in the audio.

Continued on Page 1229

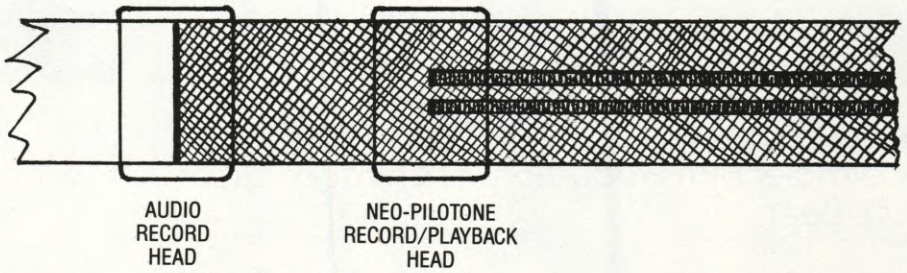
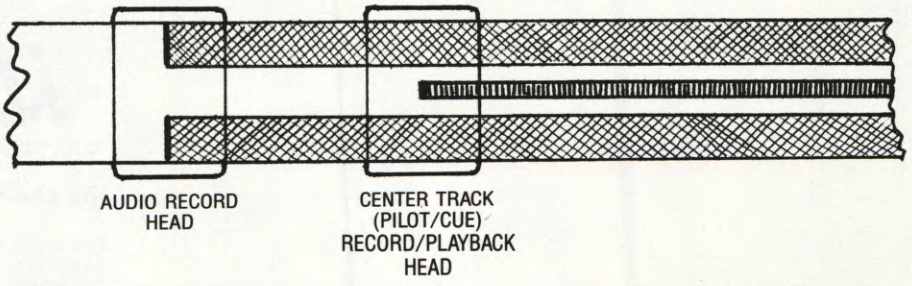


FIGURE 1—Conventional mono 1/4" recorder with neo-pilotone-sync system. Neo-pilotone technique consists of a dual gap head that puts two impulse tracks over the audio information. These two impulse tracks are equal, but of opposite polarity.

FIGURE 2—Stereo or "two-track" 1/4" recorder with sync track. The Nagra uses a 13.5KHz carrier frequency for the sync track, onto which the sync tone is FM-encoded. Most other manufacturers use the direct method of placing the 50Hz or 60Hz tone directly into the center track.



Canon Academy Award Winning Ultra-Fast Aspheric Prime Lenses for 35mm Cinematography

Specifically designed for professional cinematography, these exciting new lenses are the result of an extensive and painstaking research program jointly undertaken by Canon Inc. and Cinema Products Corporation, in cooperation with the Research Center of the Association of Motion Picture and Television Producers.

Naturally, these lenses incorporate all the latest advances in modern lens technology, including multiple anti-reflective coatings on all elements, floating elements wherever required, etc.

But it is the *aspheric* property of these lenses that makes them so extraordinary — because aspheric lens design is inherently superior to conventional lens design since it permits the best possible use of all available light.

And, unlike any other series of high speed lenses currently available for motion picture use, *every lens in the Canon series is aspheric.*

24mm (T1.6)

35mm (T1.4)

55mm (T1.4)

85mm (T1.4)

lower, with nothing but neon signs and street lamps for illumination, there's virtually no halation. The Canon aspherics just take the light in: penetrating the scene, holding all the detail.

The Canon aspheric lenses minimize uncontrollable flare (with its concomitant loss in contrast and resolution) and improve the definition and contrast of the scene *regardless of variation of light levels within the scene.* Even at the highest levels of illumination.

The result on film is photography that is remarkably clear and sharp, well defined and well balanced, with good color rendition and saturation, especially with regard to flesh tones.

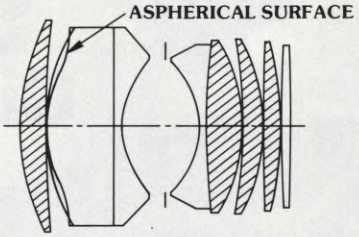
Which makes the Canon aspheric lenses ideal for filming under any and all light conditions. Night-for-night with available light, as well as in broad daylight, or on a well lit sound stage.

The technological breakthrough

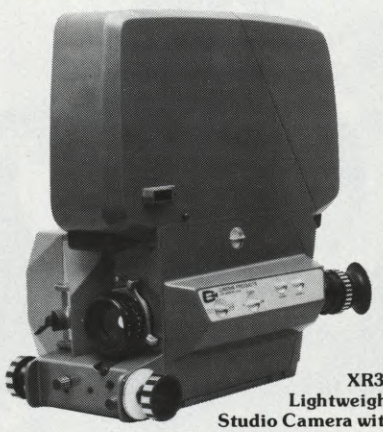
While the theory for the design of aspheric lenses has been known for quite some time, it was not until the advent of modern computer technology and the development of computer-controlled automated machinery that it became possible to design and grind aspheric lenses in such a way as to permit *consistent high quality manufacture at a reasonable cost.*

Which is what prompted Canon and Cinema Products to launch a development program for a series of ultra-high-speed aspheric prime lenses, all supplied with BNCR-type mounts, and covering the range of focal lengths most used in professional cinematography: 24mm, 35mm, 55mm and 85mm.

A great deal of money, time and effort went into this program. The final results are more than well worth it.



Arrow points to aspherical surface. The deviation from the normal spherical curve is exaggerated for illustrative purposes.



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Aspherics – ideal for filming at *all* light levels

By causing the marginal rays to be in sharp focus, and, at the same time, rejecting random or spurious rays, the Canon aspheric lenses improve definition and sharpness at the edges and reduce flare when the lens is *wide open.*

Shooting night-for-night with available light — the aspheric lens wide open — at 25 footcandles and even

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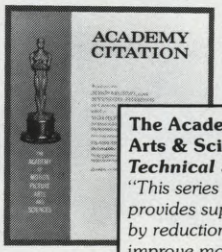
Ask your dealer (or call Cinema Products) to arrange for a screening of our dramatic 35mm test reel comparing the Canon aspherics with other high speed lenses for motion picture use.

Before you start on your next film project, shoot some test film of your own.

Your eyes will convince you. The Canon aspheric prime lenses are superior to any other high speed lenses currently available for 35mm cinematography.



The Academy of Motion Picture Arts & Sciences *Scientific or Technical* award citation reads: *"This series of super-speed lenses provides superior image resolution by reduction of lens aberrations to improve motion picture photography under low-light conditions."*

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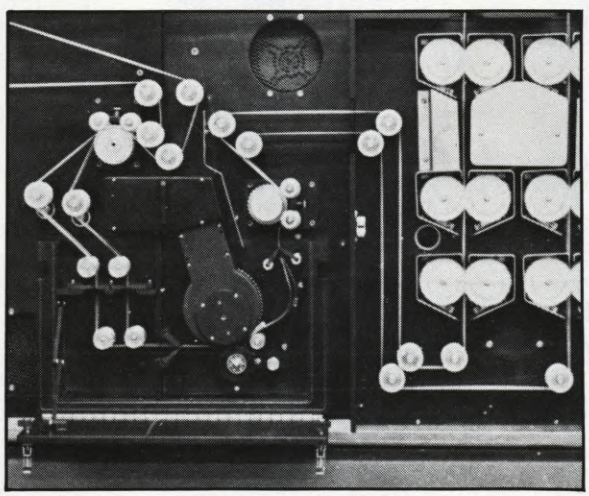

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THE BOOKSHELF

By GEORGE L. GEORGE

A TREASURY OF DIRECTORS

Under the general editorship of Prof. Ronald Gottesman, G. K. Hall & Co. (70 Lincoln St., Boston, MA 02111) has published 6 volumes in its Reference Publications in Film series. Each of these books, subtitled "A Guide to Reference and Resources", deals with a top director and offers an abundant source of facts about his life and work.

Written by different authors, the texts follow a common overall method of dealing with its subject in a manner intended to foster and facilitate study, and provide a valid uniform approach. The scholarship is consistently of the highest order, showing serious original research, extensive knowledge of film history, and literary excellence.

Here are the titles comprising this valuable and scholarly series: FEDERICO FELLINI by John C. Stubbs with Constance Markey and Marc Lenzini ($30); KEN RUSSELL by Diane Rosenfeldt ($14); ERNST LUBITSCH by Robert L. Carringer and Barry Sabath ($20); JOHN SCHLESINGER by Nancy J. Brooker ($14); RICHARD LESTER by Diane Rosenfeldt ($15) and ROBERT FLAHERTY by William T. Murphy ($18).

★ ★ ★

Director Vilgot Sjöman (*I'm Curious Yellow/Blue*) served, back in 1962, a fruitful apprenticeship with Ingmar Bergman during the production of *Winter Light.* The tapes on which he recorded successive stages of the work are reprinted in L 136: DIARY WITH INGMAR BERGMAN, offering an intimate and highly informative insight into the director's personality and methods, and a uniquely perceptive document on the creative film process (Karoma, 3133 Bolgos Circle, Ann Arbor, MI 48105; $9.95/4.50).

The career of director/writer/producer Joseph L. Mankiewicz is thoroughly investigated in PICTURES WILL TALK, a fascinating portrait by Kenneth L. Geist. Extensively documented from original sources with an eye for authentic detail, this spellbinding (and unauthorized) biography offers a vivid and incisive portrait of a sensitive, shrewd and creative individual (Scribners $12.95).

Donald Spoto, in STANLEY KRAMER:

FILM MAKER, has written a solid appraisal of a director he considers one of the prime movers of mature contemporary American filmmaking. Spoto offers an appreciative film-by-film assessment of Kramer's work as director and producer, subjecting his movies to a well balanced analysis of their form and content (Putnam $12.95).

In his autobiography MOVIE STARS, REAL PEOPLE, AND ME, Joshua Logan deals mainly with his Hollywood career as distinct from his Broadway work. It's a highly entertaining tale of people and events, replete with facts, anecdotes and gossip, fond recollections of his friends and also some lethal comments about former associates (Delacorte $9.95).

Judith M. Kass portrays with deft strokes and solid data a highly individualistic director in ROBERT ALTMAN: AMERICAN INNOVATOR. Resolutely anti-establishment, Altman satirizes with devastating humor such respected institutions as the army (in *Mash*) and marriage (in *A Wedding*). How he does it is closely analyzed by Kass in this stimulating and informative study (Popular Library $2.25).

From N. Y. Zoetrope (31 E. 12 St., NYC 10003), two appealing surveys of directors: THE FILMS OF VINCENTE MINNELLI is a comprehensive backward look at his substantial oeuvre, compiled on the occasion of a recent retrospective, and edited by Penny Yates ($3). In DON SIEGEL, originally issued by the British Film Institute, Alan Lovell addresses himself to the sociological issues raised in Siegel's work, a scholarly study that sets his films in a societal perspective ($3).

In THE FILMS OF LENI RIEFENSTAHL, David B. Hinton attempts again to dissociate the filmmaker from the Nazi propaganda machine. He even quotes another Nazi bigwig, former Reichsminister for Armaments Albert Speer in order to prop up his untenable position. Hinton, now a Des Moines investment broker, lectured at Heidelberg University where he collected other data included in his book (Scarecrow ($7).

★ ★ ★

THEMES AND VARIATIONS

George Griffin reproduces in FRAMES an impressive collection of drawings and statements by 70 independent American animators. The variety of esthetics emerging from the book is remarkable, reflecting innovative techniques from optical printing to xerography and computer technology. The most articulate contributor is Larry Cuba who extolls the computer as a stimulant for the artist's work, while the most graphic is John Canemaker's evokative and dynamic drawing (Griffin 28 E. 4 St., NYC 10003; $5).

Eastman Kodak issues a helpful and systematic guide to independent nontheatrical film production. THE BUSINESS OF FILMMAKING deals comprehensively with the various steps in production and distribution, offering practical suggestions for handling sponsors and clients ($6.95).

Well researched and documented, BLACK FILMS AS GENRE by Thomas Cripps examines movies that present a degree of creative black origins, relate significantly to black audiences, and cast a light on Afro-American experience. His sensitive and broad study encompasses the spectrum of black films from the traditional stereotypes to current "blaxploitation" films and some notable attempts at honest depiction (Indiana U. Press $12.50).

An extensive listing compiled by Edward Mapp, DIRECTORY OF BLACKS IN THE PERFORMING ARTS includes some 850 creative individuals active in films and television, as well as in theatrical fields. Biographical career data are provided in this valuable reference work (Scarecrow $17.50).

All the Westerns produced from the advent of sound through 1977—some 3500 features and shorts—are fully listed and referenced in SHOOT-EM-UPS, a prodigious work of unequaled research and compilation by Les Adams and Buck Raines, including 113 foreign-made Westerns and a summary of pre-sound westerns (Arlington $30).

In THE GOLDEN AGE OF "B" MOVIES, Doug McClelland conjures up mellow memories of hundreds of low-budget films made during the 40's, recording production data, plots and casts together with knowledgeable comments and appropriate anecdotes about the many stars and directors who got their start in these nostalgia-filled "quickies." (Two Continents $17.95/9.95).

Researched by James Robert Parish, HOLLYWOOD CHARACTER ACTORS surveys some 400 performers who acquitted themselves with distinction in secondary roles. This illustrated large format volume, covering some 50 years of Hollywood filming, lists them alphabetically with essential statistics and extensive credits (Arlington $30). ■

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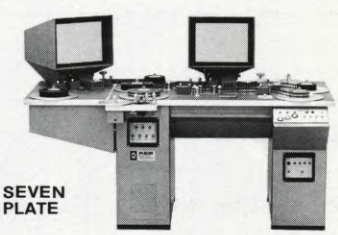
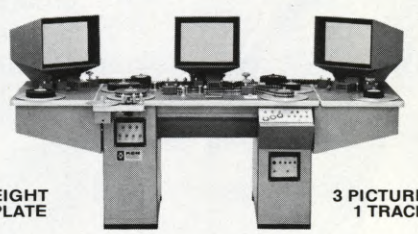


SEVEN PLATE — 2 PICTURE 1 TRACK

EIGHT PLATE — 1 PICTURE 3 TRACK

EIGHT PLATE — 2 PICTURE 2 TRACK



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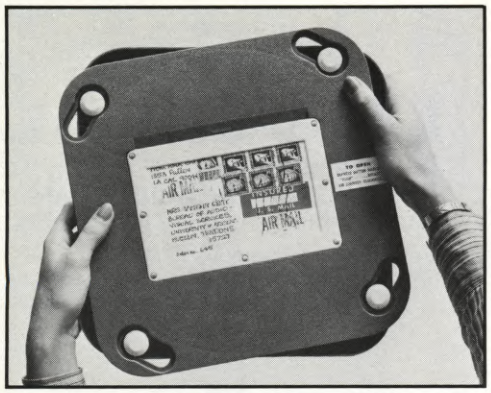

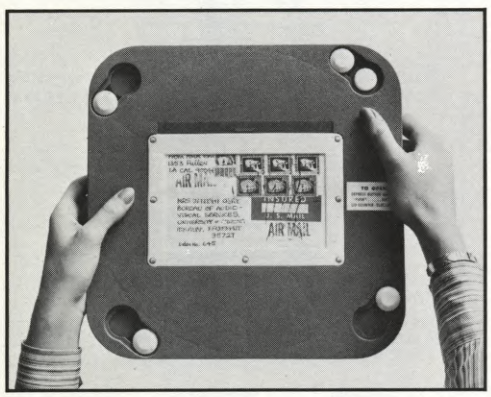

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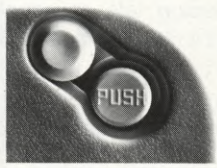

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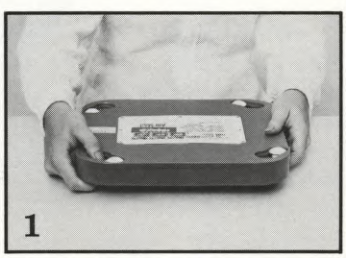

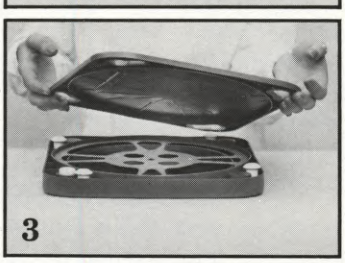

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Auricon Cine Voice Camera w/amplifier, power supply, 25mm Soligor	$ 895.00
Auricon CM-74G Pro 1200 Camera, 12-120 Angenieux, 2 mags, case, w/MA 11 amplifier	$3750.00
Bolex EBM Camera, compact vario switar 17-85mm, 400′ mag, electric grip, grip battery, battery charger	$3100.00
Beaulieu R-16 Camera Body, electric grip, batteries, synchro pilote, charger	$ 695.00
Bell & Howell Filmo 70-C Spider Turret	$ 299.50
Maurer Model J Camera, B-M viewfinder (clean), 24fps motor. As is	$2195.00
Maurer B-M Silent Pro Camera, 24fps motor, 400′ mag	$2150.00
Arriflex 16SB Camera, two 400 ft magazines, torque motor, variable speed motor, 16mm, 25mm, 50mm, and 75mm Schnieder lenses, Angenieux 12-120mm zoom lens, Cine 60 zoom motor, matt box. Used, Good condition. New price $15,362.00 Sale price	$8250.00
Arriflex 16SB Camera, two 400 ft magazines, torque motor, variable speed motor, 16mm, 25mm, 50mm Schnieder lenses, Zeiss 10-100mm zoom lens. Used. Good condition. New price, $14,368.00. Sale price	$7775.00
Maurer 05 Camera, three 400 ft magazines, optical finder, variable speed motor, AC motor, DC motor, cables, standard tripod with proj. top and cases. Used. Good condition. Sale price	$3250.00
Arriflex 16S Camera, variable speed motor, power cable, 16mm, 25mm, and 50mm Schnieder lenses. Used. Excellent condition. New price $9750.00. Sale price	$4995.00

All Equipment Subject to Prior Sale

All Equipment Used Unless Otherwise Specified

LENSES

"C" MOUNT

	Sale Price
15mm f1.4 Nominar	$ 149.50
17.5mm f2.3 Baltar	$ 165.00
25mm f1.4 Ektar	$ 125.00
25mm f0.95 "C" Mount. Like new	$ 495.00
29mm f1.0 Bausch & Lomb	$ 195.00
35mm f2.3 Bausch & Lomb	$ 155.00
35mm f2.3 Baltar	$ 155.00
40mm f1.6 Ektar	$ 129.50
50mm f2.3 Baltar	$ 150.00
75mm f2.3 Baltar	$ 150.00
100mm f4.0 Cooke Telekinic	$ 150.00
Angenieux 10mm f1.8	$ 300.00
10 mm. Keren Switar f1.6	$ 375.00
75 mm. Elgert Cine Navitar	$ 175.00
25 mm. Cine Ektar f1.4	$ 165.00

ZOOM LENSES

17-85 Pan-Cinor Arri Mnt	$ 350.00
28-280 f3.5 Zolomatic w/viewfinder, value. $7800.00	$3200.00
25-250mm f3.2 Angenieux zoom lens, Arri mount. Used, ex. condition	$4875.00
9.5-95mm f2.2 Angenieux "C" mount zoom lens. Used. ex. condition	$2795.00
12-120mm f2.2 Angenieux zoom lens, AZO 12" finder. Used, good condition	$2200.00
12.5-75mm f2.2 Angenieux zoom lens, Arri "B" mount with 16 BL lens housing. Used, ex. condition	$1625.00
25-250mm f3.2 Apri Mt. Zoom Lens, Excellent	$4875.00
8.5-95mm Zoom Lens w/Finder	$1750.00
12.5-50mm Angenieux Retro-Zoom	$ 350.00

ARRI MOUNT

16mm f2 Schneider Cinegon	$ 225.00
25mm f1.4 Schneider Xenon	$ 210.00
35mm Kinoptic	$ 225.00
50mm Cooke f1.8	$ 175.00
12.5mm Cooke f1.8 used excellent	$ 495.00
9mm Cooke f.2 used excellent	$ 595.00
25mm Zeiss Planar f2	$ 180.00
77mm Kinoptic f2	$ 395.00
85mm Zeiss Sounar f2	$ 295.00
90mm Macro Kilar	$ 450.00
40mm Zoomar	$ 450.00

CAMERA ACCESSORIES

16mm MAGAZINES

	Sale Price
Mitchell type 400′. New	$ 125.00
Mitchell Magnesium 400′. New	$ 185.00
B&H Type 400′. New	$ 135.00
Maurer 05 400′	$ 155.00
Mitchell 1200′ mags, new	$ 700.00
Mitchell 1200′ mags, used	$ 495.00
Eclair 400′ Magazine	$ 850.00

35mm MAGAZINES

B&H 400′ fiber	$ 19.50
B&H 400′ metal	$ 55.00
B&H 400′ bipack	$ 145.00
B&H 1000′	$ 95.00
Mitchell 400′ std.	$ 95.00
Mitchell 1000′ std.	$ 155.00
Mitchell 2000′, used	$ 550.00
Cineflex 200′. New	$ 65.00

MOTORS

Eclair CM-3 220V 60-cycle, 3-phase synchronous motor	$ 425.00
Bell & Howell Filmo 12 and 24DC	$ 95.00
Mitchell 16 24V variable speed	$3375.00
Mitchll 16 24V highspeed (96 fps)	$ 375.00
Mitchell 16 110V highspeed (48-128 fps)	$ 420.00
Mitchell 35 BNC, phase synchronous	$ 595.00
Mitchell 35 NC 110V sync	$ 395.00
Mitchell 35 NC 110V variable speed	$ 495.00
Mitchell 35 NC 24V variable speed	$ 495.00
Arriflex 16 110V/42V AC synchronous complete with power supply	$ 285.00
Arriflex 35 110V synchronous, mounted on gear base, with footage counter	$ 495.00
Mauer v/s motor 115V	$ 595.00
Arriflex Sync Motor for BL	$ 150.00

BLIMPS

	Sale Price
Cine Special Blimp, case	$ 295.00
Maurer 0-5 Blimp	$ 985.00
Raby Blimp for Mitchell Std., N.C., Wall, B&H 2709, etc.	$ 450.00

OTHER BLIMPS AVAILABLE. PLEASE STATE YOUR NEEDS.

All Prices Subject to Change Without Notice

SOUND RECORDING EQUIPMENT

	Sale Price
Concord Model 850 AC/DC Wireless PA System, Demo mdl. Excellent	$ 150.00
Martin Varispeed III Control 35mm RCA Dubber	$ 375.00
Maurer Model 10 Recorder, with amplifier, Dual Bi-Lateral Galvo, cables and cases	$7800.00
Western Electric Galvo V.D.	$ 795.00
Westrex 35mm Portable Recorder and Acc., Western Electric console optical recorder w/magnetic record and playback heads installed, 1000′ mag, feed and takeup assembly, 2 dubbers, 1 is mag/opt. Power supply, voltage control, regulator cables. All for	$8995.00
Sennheiser K2U, ME 80, ME 40, ME 20 microphones. New $412.00 Special used	$ 230.00
Shure 5655D Microphone. Special used	$ 30.00
Maurer F Prime Galvanometer	$2250.00

SOUND RECORDING ACCESSORIES

Mole Richardson Mike Boom, custom perambulator. Value $4500.00. As is	$2495.00

PROJECTORS

16MM PROJECTORS

	Sale Price
Siemans 16mm Mag/Optical Interlock with Record, remote speaker 4,200, excellent	$2495.00
Bell & Howell 185	$ 250.00
Bell & Howell 385, good condition	$ 425.00
Bell & Howell 285, good condition	$ 395.00
Bell & Howell 302, mag/optical	$ 525.00
L & W Athena 224A Data Analyzer	$ 525.00
RCA 1600 Projector	$ 450.00
Bell & Howell Jan Optical Projector	$ 450.00
Ampro 16 Optical Sound Projector	$ 175.00

35MM PROJECTOR

MP30X Projector, Lens, 500W Xenon Lamphouse, Power Supply & Stand, List $5900.00, Special	$3995.00
Shinkyo Pair 35mm Projector, as is	$1250.00
Century MSA Pair 35mm Projectors with Knisley Rectifiers	$11500.00
DVRY Single Frame	$ 995.00
Century MSR Prevue 35mm Projector Mag/Optical. 1000 watt Mazda light source, forward reverse, 3 point pedestal, Op-Amp lab sound system. Less than 100 hours total operation. Used, ex. condition	$5500.00

PROJECTOR ACCESSORIES

2000′ 35mm Alum Reels, New Price $32.50 Sale	$ 17.95

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Year End Sale •

PRINTERS

	Sale Price
B&H Model 6100 CT Additive Color Printer. Manual operation provides basic color and density balance. Includes three manually-operated light valves with 52 steps of trim. Model 6160A 1200W rectifier. Printer speed is 180/60 fpm. Film capacity, 2400 feet. One side edge light. Like new condition, less than 40 hours of operation. Current price, new $22,490. Our Price, like new	$17,500.00
B&H Model D 35mm Cine Printer, rebuilt	$4995.00
Same as above, used as is	$2595.00
B&H Model J 16mm Cine Printer, rebuilt	$5650.00
Same as above, used, as is	$4250.00
6200MB Single Automatic light valve, standard speed reader, rectifier and sound head. New price $28,000.50. Sale price	$17,500.00
Acme 104 Optical Printer 16 or 35 with Bell & Howell color additive lamphouse. New price $60,000.00. Sale price	$40,000.00
B&H Model J Printer w/fader, power supply, very good condition	$5995.00
B&H Model JC Printer w/edge numbering light, very good condition	$5250.00
Depue Optical Reduction Printer Model K3532, daylight operating, rebuilt, good condition	$5500.00
B&H 35-32 Contact Printer, needs work, as is	$2950.00
Depue 35-32 Reduction Printer, as is	$1700.00
Arriflex 35mm Step Printer w/punch tape control, used, as is	$ 995.00
Herrnfeld Model 35mm Printer w/shotgun color filter changer, used, as is	$ 795.00
Kodak 35-16mm Optical Sound Track Reduction Printer, rebuilt	$5200.00
B&H 35-32 Contact Printer, needs work, as is	$2950.00
B&H Model 6200 MB. Features include single light valve standard speed reader, rectifier and sound printing head. Sold new for $28,000.00	$17,500.00

PRINTER ACCESSORIES

Deluxe additive type lamphouse, used, as is	$1850.00
Depue 35-32 Fish-Schurman additive lamphouse w/DC power supply, as is	$2500.00
Depue light control board for use w/Depue optical reduction printers. Provides 22 light changes, 75 or 150 scene changes, used	$ 450.00
DC Power Supply	$ 495.00
35mm Neauvator, Film Cleaner. Rebuilt	$ 600.00

SPLICERS

Neumade 16mm R-2 Splicer. Used, good condition	$ 15.00

FILM DRYER

EL 13A, 16/35/70mm, sold new for $4950.00, our price, rebuilt	$3400.00

★

SPECIAL

Guillotine Tape

List $2.75

Special on 6 or more:

$1.95

(Offer good until 1/31/79)

EDITING AND CUTTING ROOM SUPPLIES

	Sale Price
B&H 16/35 pedestal splicer. Reconditioned	$1195.00
Harwald Splice-O-Film 16mm hot splicer. Like New	$ 139.00
Acmade 16mm precision hot splicer similar to B&H hot splicer	$ 99.50
Moviola 16mm Model K20 Table Model Viewer with reel spindle and counter. Used, excellent condition	$ 395.00
Moviola 16mm Model K20 Table Model Viewer with reel spindle and counter. With 4x5 picture. New price $1095.00	$ 595.00
Morgan Fairest Robot II, fully automatic splicing machine, pos-neg pins. 35mm	$ 299.50
N.C.E. 65mm 3-gang sync w/counter ASA II	$ 300.00
Richards Hot Splicer 70mm	$ 295.00
Moviola 16mm Mdl. UL20S console w/picture head and separate sound head, footage counter, lightwell tray. Used, excellent	$3200.00
R2, Griswold 35mm splicer	$ 49.00
Moviola 4 gang, 35mm synchronizer	$ 120.00
Ceco 16mm viewer	$ 150.00
Griswold 35mm R-3 splicer	$ 19.95
Moviola RHD-BR rewinder	$ 150.00
Moviola URS amp, used	$ 65.00
Moviola S2D 16mm synchronizer satellite sound reader	$ 75.00
Moviola Splicer	$ 65.00
Precision 800 Sound Reader	$ 225.00
R to L Mier Hancock 816 Hot Splicer	$ 175.00
16mm x 1000′ Flanges	$ 10.00

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Whether you are producing a documentary film in Asia or equipping a motion picture studio in Europe, please remember that Alan Gordon Enterprises is ready and able to serve your needs in every way. Chances are that the cameras, sound, processing or editing accessories you need are in stock here. Should you require special adaptations, Gordon technicians and optical and sound engineers are just a phone call or cable away from you... wherever you are. They are at your service in solving your production problems. Please feel free to call for assistance in selecting the most practical equipment. The telephone number is Area Code (213) 466-3561

LABORATORY EQUIPMENT

PROCESSORS

	Sale Price
Houston-Fearless Model A-11. For 16mm or combination 16/35 B&W negative/positive and reversal. Speeds to 20 fpm. Our price, rebuilt	$3995.00
Houston-Fearless Model S120 PN B&W 16/35 Hi-Speed Spray Processor, 18-150 fpm. Our price, excellent condition	$5500.00
Houston-Fearless Model 22B B&W 16mm Negative/Positive. Speeds: negative, 18-35 fpm; positive, 25-45 fpm. Our price, used	$3495.00
Houston-Fearless Model L 16/35 NP Labmaster B&W Processor. Speeds to 40 fpm. Simple modular sections. Easy to operate, daylight load operation, easy accessibility for cleaning. Open face construction. Sold new for $6500.00. Our price, used	$3650.00
Triese Hi-Speed C-22 color processor 16/35 ME 4. Replacement cost $140,00.00. Used, excellent	$65,000.00

LIGHTING AND GRIP EQUIPMENT

DOLLIES AND CRANES

	Sale Price
20th Century-Fox Stage Crane, powered by self-contained rechargeable batteries, offers a variety of camera positions from 92″ off ground to floor level. Unit is 8′10″ long, boom arm 160″ long, has 45″ swing. Weight 1750 lbs. Less weights, batteries and chargers	$5500.00
3 Wheel Bicycle Dolly	$ 175.00
Houston Fearless Panorama Dolly, 4-wheel, steerable, compl. w/boom arm	$ 795.00
Raby 4-wheel stage dolly with boom arm. Fair condition	$ 300.00
Paramount Studio Crane Mdl. II, electronically operated. Maximum boom 15′; overall length 33′	$ 900.00
Paramount Studio Crane, Mdl. III. Similar to Model 11. Overall length 31′. Some parts missing	$ 700.00

LIGHTS

	Sale Price
Mole Richardson Tener Solar Spot w/crank up stand	$ 575.00
Mole Richardson 750W	$ 60.00
Bardwell McAllister 2KW Each or three for	$ 67.50 $ 150.00
Colortran 10″ ring focus Fresnel	$ 285.00
Colortran 500 1000W LQK5	$ 29.95
Colortran Scoop 1000W LQK15	$ 37.50
Vari-Beam 1000W	$ 40.00
4-light "FEY" fixture, uses DWE or FBE lamps, indiv. switches. New value $179.00	$ 78.95
Colortran 2K Soft Light	$ 175.00
Colortran 2K Broad	$ 125.00
Mole Richardson 5K w/stand	$ 250.00
Mole 10KS w/crank-up stand	$ 575.00
Mole 5KS	$ 110.00
Baby 750W Keg w/stand	$ 65.00
2K w/ stand	$ 90.00
Mole Richardson 2K	$ 89.50
Mole Richardson Solar Spot #407	$ 84.95
Mole Richardson Solar Spot #104	$ 29.95

STANDS

Bent leg stand 35″-100″. New	$ 69.00
Compact stand 20″-89″. New	$ 49.00
Master Stand 40″-135″. New	$ 75.00
Master Stand Castered 44″-139″. New	$ 89.00
Cine Stand Castered 46″-94″. New	$ 145.00
Alu-Stand 45″-124″. New	$ 145.00
Mini-Light Boom 29″-81″. New	$ 95.00
2X2 Hand Reflectors w/stand mounting yoke. Hard and Soft side. New	$ 39.95
Century Gobo Stands, partially complete. As is	$ 25.00
Mole Richardson Castered Stands. Used	$ 49.95

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REPORT FROM photokina 1978

An on-the-site description of what's new in motion picture and TV equipment, as displayed at the huge "World Fair of Photography" held biennally in Cologne

By HERB A. LIGHTMAN

COLOGNE, West Germany

Each time I attend the famed "World Fair of Photography", held biennially in this bustling city on the Rhine, I do so with the expectation of a kid on Christmas morning—for here is a complex of twelve gigantic halls chock-a-block full of photographic goodies from all over the world. I keep hoping for mind-boggling surprises, for items of dazzling mechanical and electronic achievement that will revolutionize the filmmaking process.

This year, we are assured at the opening press conference, the prospects are especially good. More than 1,000 exhibitors representing 27 countries (and occupying 2,152,000 square feet of floor space) will be presenting their products to the photographic community during the seven-day run, setting new records for *PHOTOKINA*.

Of course, much of what is to be displayed at this Big Daddy of photographic trade fairs falls into the categories of still photographic equipment, amateur movie equipment and photofinishing gear. The items of professional motion picture equipment—those of prime interest to *American Cinematographer* readers—are concentrated in Halls 11 and 12.

Almost by instinct I head first toward the Arriflex stand, because not only is it the largest, but many old friends are in attendance there, most notably Horst Bergmann, Arnold & Richter's Marketing Manager, and Volker Bahnemann, President of Arriflex Corporation. After a warm reunion, they give me a joint guided tour of Arri's latest wonders.

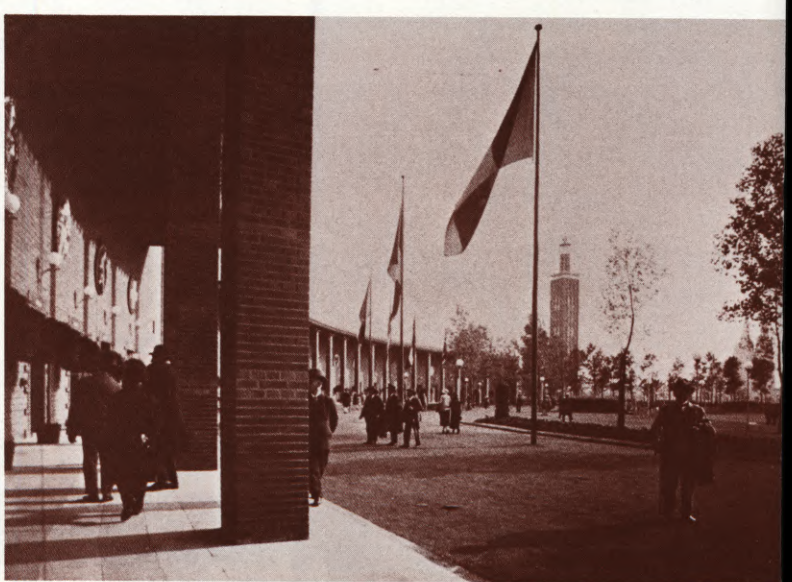
The first in this category is, of course, the new Arriflex 35 III camera, which, while not at a level of importance with the company's 35BL or 16SR, represents the long-overdue update of the trusty Arriflex IIC, for many years the dependable "MOS" second camera used in professional filming. Unpretentious in silhouette, the Arriflex 35 III nevertheless incorporates many sophisticated features and would seem to be a worthy companion piece for the elegant 35BL.

I am next shown a working prototype of Arri's new Report 200 HMI Light, a fine-looking hand-held portable unit featuring a unique triple-deck modular stack of components that include the electronic ballast unit, a 7 AH nickel-cadmium battery pack and a combination charger/AC buffer pack. These three modules mount together in a neat stack and, depending upon the application, would be used with two or three in place.

But the surprise of the day is revealed when Horst Bergmann escorts me to a remote corner of the stand and, with an air of heavy secrecy, slips a video cassette into a player and switches it on. Interspersed with cuts of a young camerawoman hand-holding an Arriflex camera are clips from scenes which she is shooting—scenes filmed from cars, boats, helicopters and on horseback. They are notably free from vibration and it becomes obvious that some sort of small stabilizing device has been attached to the camera—although we are never allowed to get close enough to see what it is. The effect of the stabilizer is not at all like that of devices such as the Steadicam or Panaglide which, in addition to eliminating vibration, also equalize larger movements very smoothly. The new Arri stabilizer (which does not even have an official name at this writing) acts more like a Dynalens or one of the gyro devices Nelson Tyler has developed for filming from bumpy vehicles. The effect is impressive, but the device is under such a heavy blanket of hush-hush secrecy that none of Arri's *PHOTOKINA* personnel will even discuss it. We'll just have to wait and see.

Over at the Cinema Products stand, the handsome "GSMO" 16mm sound camera is the center of attention, just as it was a year-and-a-half ago at London's *FILM '77* and last year at the Los Angeles

(LEFT) Main entrance to the enormous complex of exhibition halls on the banks of the Rhine River that, every two years, is the site of *PHOTOKINA*, which brings together photographic equipment and many visitors from all over the world. In the background can be seen the Cologne Cathedral, famed landmark of the city. (RIGHT) Another view of the complex photographed in years past. The tower in the background is a distinguishing feature.



photokina

SMPTE Conference. In the meantime, nary a GSMO has found its way into the hands of a filmmaker. I ask the obvious question: "When?" CP's amiable president, Ed DiGiulio, assures me that early in 1979 the flow of units now in production will start filtering down to dealers. In fact, he confides, three key dealers have already received cameras. So far, so good.

But the real news at the Cinema Products stand is a completely new product making its debut at *PHOTOKINA*. Called the U/F-16 "Upright/Flatbed" Editing Console, it combines the best features of a flatbed console with those of the classic vertical Moviola (which many veteran film editors are still reluctant to abandon). A 6-plate machine accommodating one 16mm picture and two 16mm magnetic sound tracks, its plates are terraced to effect a significant saving in space, while providing a broad clear working area. But the most radical innovation is the use of coaxial sprocket wheel assemblies arranged in a straight-line vertical "synchronizer" configuration that makes threading simplicity itself by eliminating the countless rollers requisite to conventional flatbed consoles. The same design innovation makes it possible to edit short lengths of film without having to splice on leaders (a major gripe of flatbed users). There are many other original and sophisticated features, topped off by the fact that the entire assembly breaks down into two cases that can be transported in a normal-size automobile.

As an onlooking consultant for several major (and unrelated) equipment manufacturing companies put it: "Cinema Products has done it again. They've come up with exactly the right product at exactly the right time."

Visits to the stands of various lighting equipment manufacturers confirm the fact that HMI is here to stay. Virtually every manufacturer has at least one new HMI unit on display and, in the case of biggies like LTM and Quartzcolor Ianiro, there are several. Perhaps the most original design is displayed by Ryudensha of Tokyo in its HMI/Tungsten Universal Type Fresnel Spotlight Series. This is a line of cube-shaped luminaires (for easy

Continued on Page 1220

NEW FROM ARNOLD & RICHTER

Among the surprises unveiled by ARRI at *PHOTOKINA:* the elegant new Arriflex 35 III camera, a sleek new portable 200-watt HMI light, and a compact on-camera stabilizer shrouded in thick veils of secrecy

Arnold & Richter with its large stand at its traditional location in Hall 11 was, as usual, a center of great activity as visitors gathered around the many products on display.

Arnold & Richter has recently undergone a change in top management, with the "second generation" now at the helm of the company. In the United States, historically its most important market, A & R has established its own subsidiary, now called Arriflex Corporation, by purchasing all assets of the previous distribution company.

Among the many items of Arri equipment displayed at *PHOTOKINA* there were three new ones which would appear to be of particular interest, and they are described informally as follows:

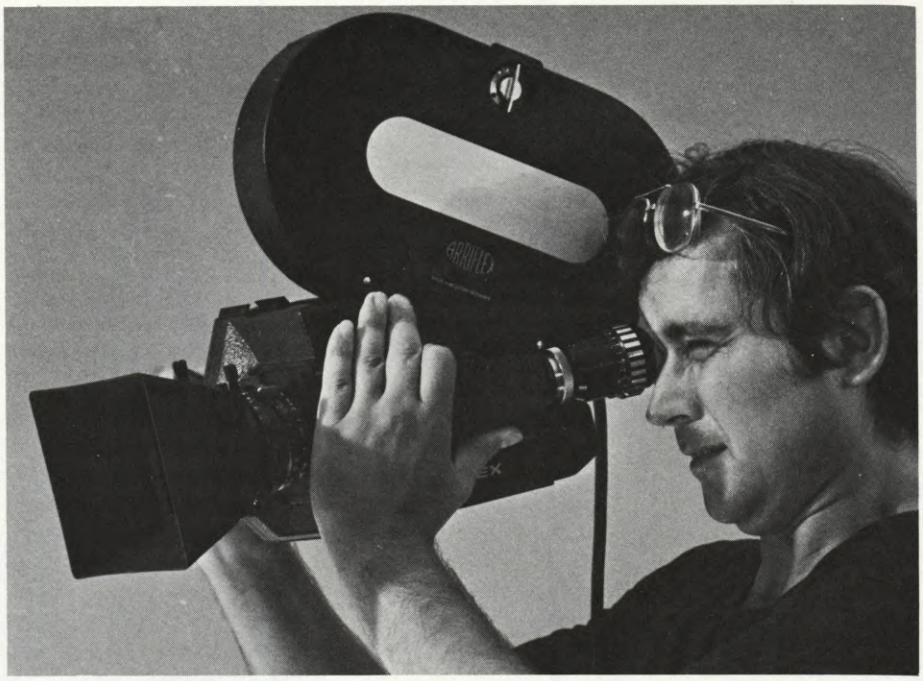
THE ARRIFLEX 35 III

The new Arriflex 35 III camera, as described by Horst Bergmann, A & R's Marketing Manager, and Volker Bahnemann, President of Arriflex Corporation, would seem to be the logical and worthy replacement for the Arriflex 35 II, for many years the dependable "workhorse" of the motion picture industry. Even today, there is hardly a 35mm feature that does not, at one point or another during its production, press the Arriflex 35 II into service as a second camera. However, over the years, even though the basic camera continued to be viable, a broad range of "non-Arriflex" accessories (made by other manufacturers) appeared on the market to update the camera and keep it in step with the latest industry developments, such as crystal motors, heavy zoom lenses, follow-focus systems, etc.

"After having entered the primary production camera market with our 35 BL," Volker Bahnemann said, "it became instantly apparent that we needed an 'MOS' camera which would allow us to systemize better than this was possible with the Arri IIC. The Arri 35 III was designed to retain the proven, simple concepts of the IIC," continued Volker, "but also to incorporate all the updated features of a modern production camera."

Basic to the new design is a flat camera base, a single lens mount and the retention of the conventional Arri magazines, of which tens of thousands are already in use.

Its new film transport movement employs a simple fork pulldown claw and a



(ABOVE) The new Arriflex 35 III was designed "to retain the proven, simple concepts of the trusty Arriflex IIC, but also to incorporate all the updated features of a modern production camera." (BELOW) The new REPORT 200 HMI Light is a portable daylight source which can be operated from a special 24-volt battery or, in buffer operation, from a 110/220-volt mains supply.

registration pin. This improved mechanism optimizes image steadiness and allows the camera to run up to 100 frames per second.

A crystal controlled motor circuit with 24/25 fps sync speeds and on-board variable-speed control eliminates the need for separate sync and high-speed cameras on a production. One of the minor hassles of a cameraman's life has always been the requirement to turn inching knobs in order to open the finder tract. The new Arri III, like other modern cameras, uses a sensing circuit to stop the shutter in the viewing position at all times.

A major improvement over its predecessor is the variable angle viewfinder. This, by the way, is the only feature of the camera which was not shown in all of its final versions at *PHOTOKINA*. The cameras on display had the two versions of straight finders, one fixed for the video pickup, the other rotatable from 180° up to 180° down. A shorter, offset finder for hand-holding the camera is in preparation.

All in all, the Arri 35 III would seem to be a well thought out companion for the 35 BL. Existing accessory equipment, interchangeable between both, rounds out the "systems approach" which was needed in the Arriflex 35mm camera line.

Technical Data Arriflex 35 III

Format:	35 m/m (Silent)
Lens Mount:	Single Arri bayonet
Film transport:	Single transport with registration cam activated
Shutter:	Mirror shutter 180°
Drive:	DC motor, ironless armature, crystal controlled
Speeds:	Crystal 24/25 Variable 6-50, built-in Variable 6-100, via external HS control, Forward and Reverse Operation, Electronic LED readout on camera
Current Consumption:	24/25 Fps 12 volt 2.5 A
Temp. Range:	+ 55°C to −25°C (+120°F to −20°F)
Weight:	Camera w/400 ft mag no film 6.5 kg (14 lbs.)
Magazines:	200 ft, 500 ft and 1000 ft

Major Camera Accessories

In their effort to "systemize" new Arriflex cameras, several new accessory items have been developed by the Arri team. One of them is a truly versatile, lightweight lens shade/filter holder assembly which fits all fixed lenses and most of the 16mm zooms.

The unit includes a filter holder assembly for two 3 x 3-inch filters, a system of adapter rings for mounting to the various lens diameters, and interchangeable rubber shades. A round shade is used in all those applications where the assembly is mounted to a rotating front lens barrel. Those lenses which have a stationary front section can take advantage of the relatively small rectangular shade.

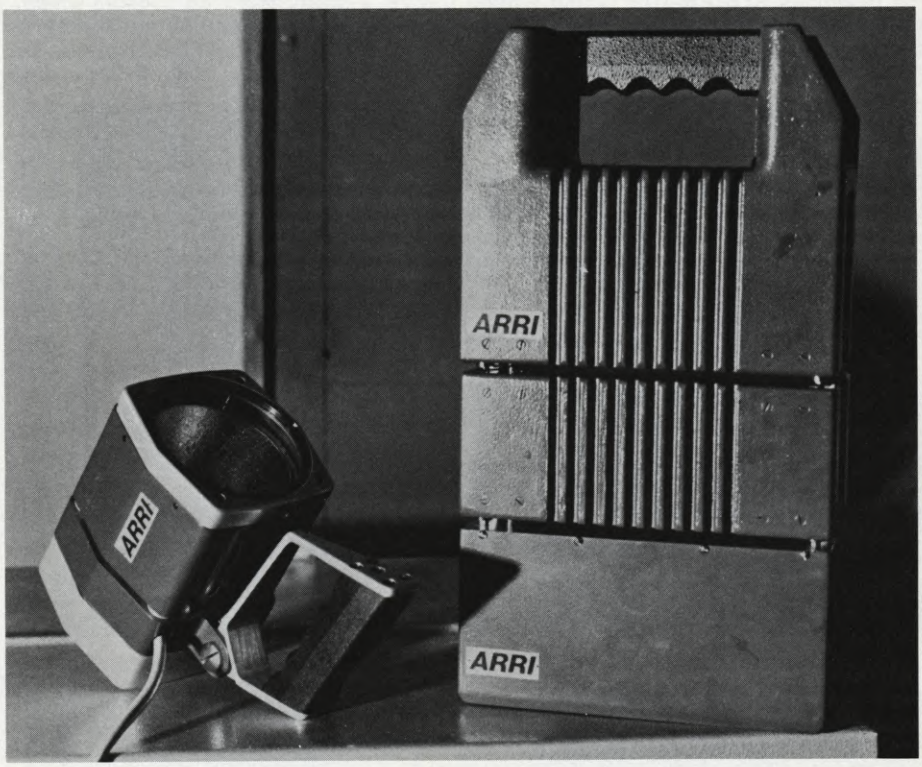
For those cameramen who are plagued with constantly changing filter sizes or who wish for a lightweight lens-mounted sunshade which offers most of the features commonly found only in stationary matte box systems, here is a well designed, small problem solver.

HMI Lighting

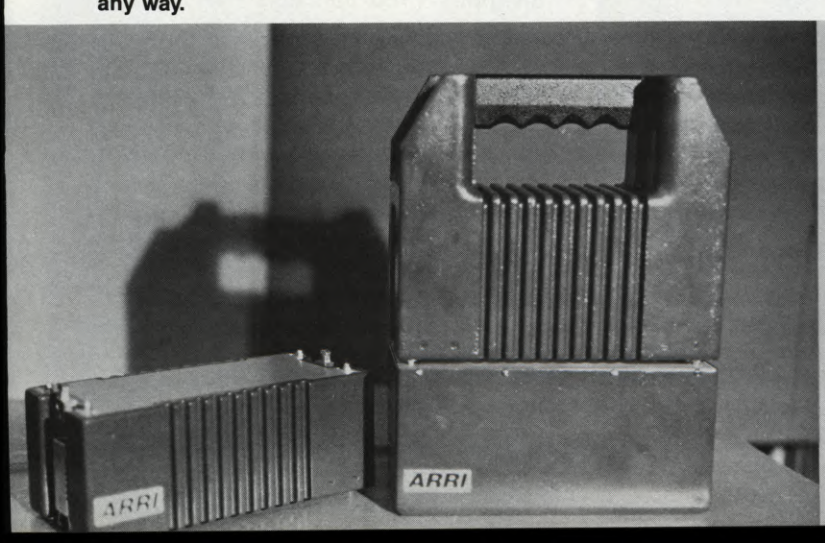
Relatively few industry people in America are fully aware of A & R's enormously broad involvement in motion picture equipment. For example, set up in one corner of the exhibit area was an impressive array of HMI light units hanging from a system of totally motorized, remote control lighting telescopes, a product group which many a company would be proud of having as their only business. At A & R, it almost gets lost among their other, perhaps more prestigious, items.

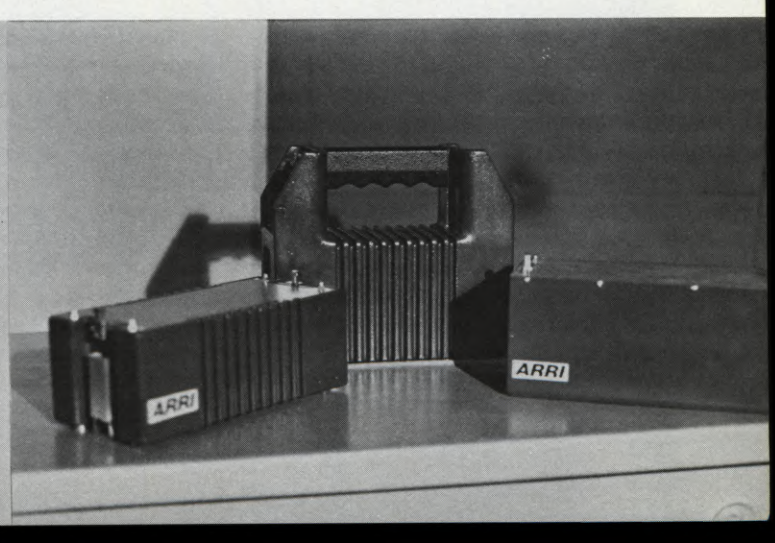
"Dr. August Arnold, who just turned 80,

Continued on Page 1214



(ABOVE RIGHT) The new HMI 200-watt light (with integrated hand grip), shown with the unique portable tri-pack, consisting of: the electronic ballast unit, a 7 AH nickel-cadmium battery pack and a combination charger/AC buffer pack. (BELOW) The three modules lock together in a neat stack and, depending upon the application, one would use two or all three of them. A real bonus is the electronic buffer for AC operation. In this mode, unlike other HMI systems, the ARRI light remains absolutely flicker-free without changing the ballast unit in any way.





THE SYSTEM-TON SOUND EDITING DEVICE

The "sleeper" of *PHOTOKINA '78* may well turn out to be this compact, but highly sophisticated, device that performs a myriad of extremely intricate sound editing functions electronically

Presented at *PHOTOKINA 1978* was System-Ton, an ingenious sound editing device for Super-8 and 16mm films. It has been designed for the filmmaker who doesn't want to waste his effort or talent on time-consuming manipulations or stop-gap methods, but wants to get results in an efficient and straightforward way, while still remaining free to experiment and modify.

The manufacturer's description of the equipment follows:

What's so special about System-Ton?

Just about everything. System-Ton doesn't work on traditional editing techniques. This invention (various patents pending) does away with the harassment of cutting, sorting and splicing tapes, makes complicated editing plants redundant, obviates the need to measure scene lengths, puts paid to the chaos of tape snippets and tangles of leads, and even prevents nightmares at the thought of any alterations to any plans.

The ingenious SYSTEM-TON Sound Editing Device, a small, table-top console which, utilizing up to four magnetic tape cassettes, performs a vast variety of sound editing functions involving commentary, music, trial mixes, corrections, sound effects and the final mix. It does away with tape splicing, since all sound "cutting" is done electronically.

How do you work with System-Ton?

1. Adding a Commentary

Record your commentary on one of the System-Ton tapes ignoring the film cues but signalling the end of each paragraph by keying in an auto-stop impulse (which will then stop the tape every time at that point). You then program the starts relative to the film, with the result that for later mixing work the tape will only run when it has something to say and will just lie in wait during all the pauses. Retakes or relocating speech passages can be done in seconds.

2. Music

Record two pieces of music alternately on two of the System-Ton tapes without any particular cueing—a boon if you are rerecording from records. You then program the cues, the necessary advance cues for the auto-stop impulses being shown electronically. There is no need to rehearse, every cue is perfect the first time round.

3. Trial Mixes

The three programmed System-Ton tapes start and stop automatically. Long overlaps make it possible to lap-dissolve music behind speech passages. The memory strip is for you to make terse notes like dissolve music on speech cue.

4. Corrections

are easy—done in a trice. You can even shorten the film without shortening the tapes. You can shorten awkward silent passages and lengthen lap-dissolves of music. That's all there is to it!

5. Sound Effects

can be premixed on the fourth System-Ton tape:

a) Camera-recorded sound is automatically premixed, fading out unwanted and fading in wanted sounds. Sound gaps disappear. You can also mix in any further sounds by hand.

b) Separately recorded original sound using camera impulses or 50 c/s pilot sound can be rerecorded in the original sequence of the camera takes, even if all the scenes are rearranged—thanks to the automatic scene numbering, sorting and editing device. Sound effects can be added to this too.

c) Sound effects from your archives can be put on three of the System-Ton tapes and premixed onto the fourth with automatic cueing.

The final mix

is carried out in the professional way, i.e. nonstop, during film projection using a standard projector (without modification) recording on the film track or on a synchronized tape recorder. In perfect sync two music tapes, an effects tape and a commentary tape are controlled so that every time a speech passage starts, the music and effects are faded.

A live sound movie

has a lot of advantages, but also two problems, but these have now been solved for the first time using the ingenious System-Ton:

Problem No. 1 = Sound Lag
The sound is 18 frames away from the picture. Cutting the film makes the sound lag behind into the next scene, with the result that for a full second you get the wrong background, e.g. surf in a woodland scene. System-Ton solves the problem without any cutting or erasing of tapes. It uses a sophisticated technique of fading out the unwanted sounds and fading in the right sounds—automatically. You just program the editing and ignore the sound track when you cut the film—it keeps in sync!

Problem No. 2 = Sound Gaps
Most sound film cameras start recording the sound after the picture has started, so when you show the film you have abrupt gaps in the sound. System-Ton solves this without cutting the film. The gaps are closed—automatically—using the original sound background of the actual scene.

16 reasons why System-Ton is unique:

With music and speech:

- Up to four synchronized hi-fi stereo tapes can be set up for automatic start and stop operation.
- Rhythm signalling for film cuts in tact with music.
- Combined with a film viewer it has the functions of a moviola.
- Exact programming of all cues follow-

Continued on Page 1177

System-Ton compared with previous editing techniques

A. Sound Editing Using a Sound Projector with Trick Effects Device

1. Adding music badly impairs the live sound.	System-Ton maintains the quality of each and every recording.
2. You can only compare the volumes after adding the new sounds.	System-Ton allows you to monitor and adjust during the mixing procedure.
3. Music retakes are only possible if you erase the live sound completely.	System-Ton stores the live sound recording, so can be used again and again.
4. Correcting live sound or adding effects can be a real problem.	System-Ton lets you correct the live sound and add any more sounds.
5. The slightest error can completely ruin all the sound material.	System-Ton allows you to correct, repeat and experiment at will.
6. Adding a commentary kills off the high notes of music and ruins the original live sound.	System-Ton automatically fades music and effects *before* any speech passage—discreetly without loss of brilliance.
7. Retakes of speech passages are a real problem as you cannot erase only speech and keep the rest.	System-Ton allows you to retake, touch up or rearrange speech, effects and music passages in the simplest possible way.
8. Your precious film has to be replayed time and time again.	System-Ton lets you make all your preparations on a safe film viewer.
9. Instead of a genuine mix you only have a string of superimposed sounds.	System-Ton puts the finished mix on the sound track in one operation—the professional way.
10. Once the editing is over any changes would mean sound gaps.	System-Ton allows you to shorten the edited film without cutting any tapes!

If you have a stereo-sound projector you can still only edit your films and maintain decent sound quality if you do without the stereo effect. You still have to face the drawbacks described above, if you still want stereo.

B. Sound Editing with an Impulse-Controlled Stereo Tape Recorder

1. The sound lag problems are still basically unsolved.	System-Ton offers the unique solution to this sound lag problem.
2. The sound gaps can only be closed by cutting out sections of film.	System-Ton darns these gaps without the need to cut the film at all.
3. Editing entails laborious linking-up of projector, mixing table, tape recorders, record player and synchronizer equipment, which may consist of many individual components.	System-Ton only needs the projector and sound source. Any rearrangement of leads is done while sitting at the unit by plugging through a program template.
4. The arrangement of all the devices takes up a lot of space.	System-Ton takes up a space of 50 x 35 cms.
5. Cueing is carried out by recording a verbal cue track—a rough-and-ready method.	System-Ton allows you to cue dead on the frame you want, and even to move up any cues you programmed.
6. You cannot stay stereo if you need two tracks after erasing the cue track.	System-Ton maintains any stereo sounds and allows you to create stereo effects by fading from one side to the other.
7. You need to draw up and follow complete editing plans.	System-Ton only requires you to jot down a few notes.
8. There is little scope for experiments—modifications are very time-consuming if at all possible.	System-Ton allows you to reprogram any cues and add new recordings in the middle of finished tapes.
9. Sync run-offs are impossible while playing off sound passages.	System-Ton lets you start all four tapes sync with the film—even in mid-film.
10. Any error when mixing forces you to start again from scratch.	System-Ton lets you restart after just rewinding beyond the error.
11. The likelihood of making some error or other is high, as most mixing tables are not fitted out with film editing auxiliaries.	System-Ton, apart from offering automatic fading before speech passages, is fitted with optical and acoustic signals to ensure you operate the right control on cue.
12. After the primary mix shortening the film is complicated since the tape can only be cut where there is neither music nor speech.	System-Ton allows you to shorten the film without adjusting the tapes. The tapes adjust themselves to the new length of film—automatically!

C. Sound Editing with Several Synchronized Tape Recorders, Perforated Tapes and Moviola

1. You still have the drawbacks mentioned under Nos. 3, 4, 10 and 11 above.	System-Ton is a compact instrument making for perfect mixing result first time.
2. Editing live sound means laborious cutting of film and tape.	System-Ton has the sophisticated fading device to solve live sound problems.
3. Rearranging the film sequence means sorting out and carefully storing snippets of tape.	System-Ton has an electronic scene numbering and sound sorting device.
4. Sticking flimsy lengths of tape together with perforated adhesive tape is a test of anyone's patience!	System-Ton does away with the cutting box. Cutting is performed electronically. No scissors needed.
5. If the moviola only has 4 discs, you cannot monitor the result of the mix while comparing it with the image.	System-Ton allows you to monitor the balance of all the sounds during the editing phase and to try it out for later mixing.
6. Any shortening of the film means shortening the finished tapes.	System-Ton lets you shorten the film without shortening any tapes at all!

CINEMA PRODUCTS' NEW "UPRIGHT/FLATBED" EDITING CONSOLE

Making its exciting debut at *PHOTOKINA '78* was this totally new and unique editing device that combines the best features of the classic vertical Moviola with those of the latest flatbed consoles

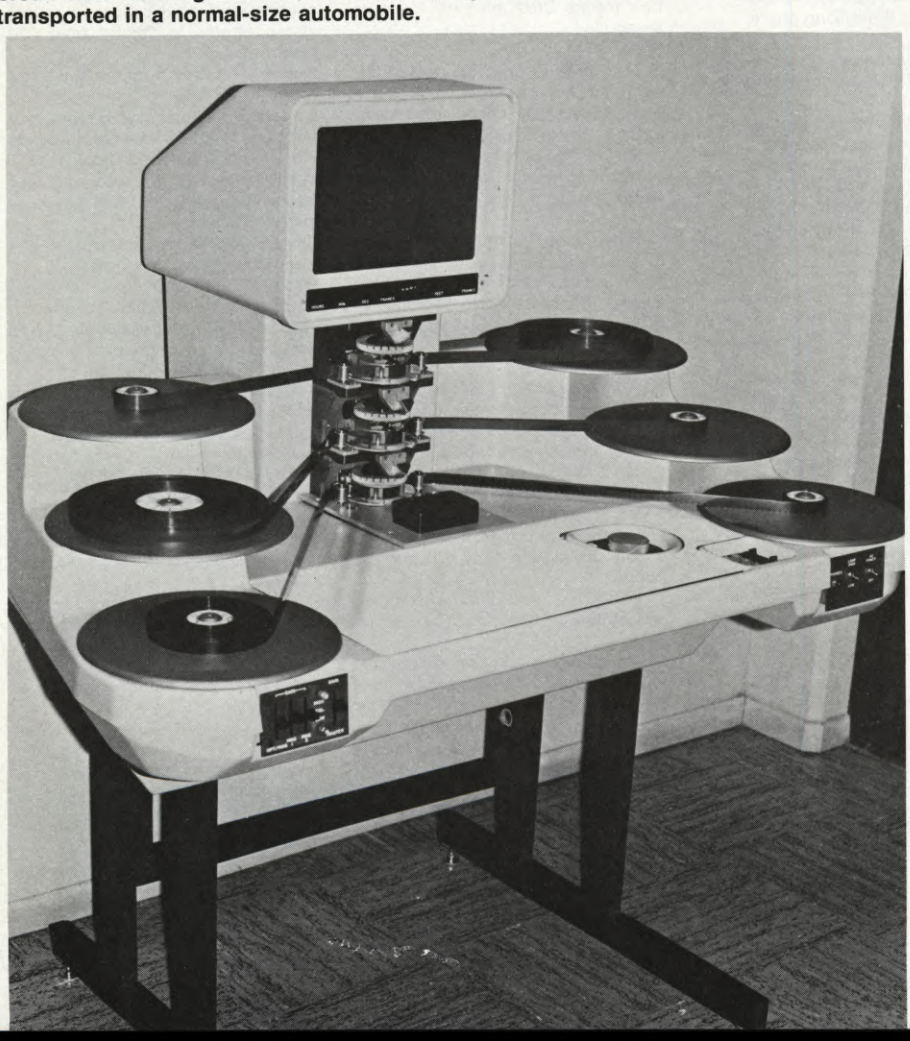
Attracting a great deal of favorable attention in its debut at *PHOTOKINA '78,* the U/F-16 upright/flatbed editing console from Cinema Products represents a new concept in the design of editing machines. It is unique in its construction, yet its design is simple (in fact, obvious!) in that it combines the best features of the original Moviola-type upright machine and those of the more modern flatbed machines.

It was invented by Robert Olodort, a young filmmaker from Los Angeles, who spent several years working as a film editor, during which time he experimented with and evolved the concepts embodied in the current model of the U/F-16 upright/flatbed 16mm editing machine.

He brought a working model of this device to Cinema Products in the Fall of 1977, along with a patent application covering the major design features of his machine. While the application is still in process through the Patent Office, the Patent Office has already allowed sixteen claims on the most important features of the upright/flatbed editing console. Cinema Products negotiated an exclusive license agreement providing for royalty payments to Robert Olodort in much the same manner as they did a few years ago with Garrett Brown, the inventor of Steadicam.

The overall objectives that Olodort attempted to achieve in his design were to create a machine that was extremely compact, yet still providing adequate working space—a lightweight machine that would be very quickly disassembled and packed into cases so as to be totally portable. It was to be simple in threading, yet gentle enough on film to handle original camera stock, and versatile enough to handle short pieces of film as easily as full rolls. With the current trend toward flickerless viewing it would also want to provide this feature, yet still be low enough in cost to appeal to the average 16mm independent filmmaker.

Previewed in Cologne was Cinema Products' new U/F-16 "upright/flatbed" editing console, a 6-plate machine accommodating one 16mm picture and two 16mm magnetic sound tracks. Its plates are "terraced" to effect a significant saving in space, while providing a broad clear working area. The entire assembly breaks down into two cases that can be transported in a normal-size automobile.



The major unique design feature is its terraced construction, whereby the six platters (accommodating one picture and two sound tracks) are set one above the other and overlap each other approximately fifty percent on the table surface, much in the same manner as a shared area or displacement-type film magazine for a motion picture camera utilizes less space to handle the same amount of film as in a conventional compartment type of magazine. This terraced design permits another unique and important feature to be incorporated, which is that the drive sprockets for the picture and sound track films can all be mounted on a common vertical shaft similar to the construction on an upright machine or resolver (except that in those cases the common shaft is in a horizontal orientation).

Threading is extremely simple, as the film goes directly from its platter to the drive sprocket with only two swing-away keeper rollers to hold it against the drive sprocket. The magnetic heads for the sound tracks are located in the center of the drive sprocket where they provide surprisingly good sound quality. It can be readily seen that this configuration makes it extremely easy for a film editor to make his synchronizing marks on each of the tracks, as they are all in alignment on the same vertical axis.

One of the most unique and current features of the upright/flatbed editing console as its ingenious plastic molded hollow prism. Previous flatbed editing tables that have used hollow prisms for flickerless viewing utilize a very expensive glass polygon with facets ground on its outer surface and a circular hole bored in its center. Simply by taking this logic and inverting it (that is, locating the facets on the inner surface, with the outer surface perfectly cylindrical), Olodort was able to achieve a design that can be molded in clear acrylic plastic and, therefore, be extremely low in cost. This approach was deemed so unique and ingenious that several of the claims previously mentioned as having been allowed by the U.S. Patent Office are for this splendid hollow polygon.

To keep the machine as simple and reliable as possible, only one drive motor is used to operate the entire machine. Two drive belts drive the sprocket shaft

and friction belts operating through unidirectional clutches operate the take-up and supply platters. The motor is a DC drive motor controlled by the usual Cinema Products crystal-control drive circuitry, so that it operates at crystal sync speed, as well as being capable of ten times sync sound speed in either direction.

In the design of its electronics the upright/flatbed editing console embodies the latest technology available to the engineers at Cinema Products. The logic they have followed is to provide a simple and low-cost machine in its basic configuration with the ability (by the inclusion of additional modules) to upgrade the performance capability of the machine at a relatively modest increase in cost.

The basic machine has two electronic counter displays directly below the viewing screen, one providing hours, minutes, seconds, and frames, and the other providing feet and frames, or meters and frames. At the lower right hand side of the table the editor has a blank keyboard with a reset button to reset the electronic counters.

With the counter logic already an integral part of the machine, it is an easy technological step upward to replace the reset button with a full keyboard permitting the operator to enter information into the counters. The next relatively inexpensive step forward that can be taken is for the machine to provide automatic high speed search in either direction to a preselected frame entered through the keyboard. The final addition in electronic sophistication would be to add an optical read head so the machine would then be capable of handling time code. In taking the philosophical design approach that they have, the Cinema Products people feel that this full capability to read time code and automatically search would not add more than one or two thousand dollars to the overall selling price of the machine.

With the idea in mind that the machine would be light enough to be portable, all of the outer housing is constructed of vacuum formed ABS material. This is a rugged, durable, yet attractive material that, by its nature as a formed material, also permits the machine to have a rather handsome industrial design look to it.

For portability, the machine is designed so that the entire light projection box and drive sprocket assembly is easily removed by loosening two thumb screws. The legs are also removed in a similar manner and the units then are packed in two carrying cases that can easily be carried in a normal size automobile.

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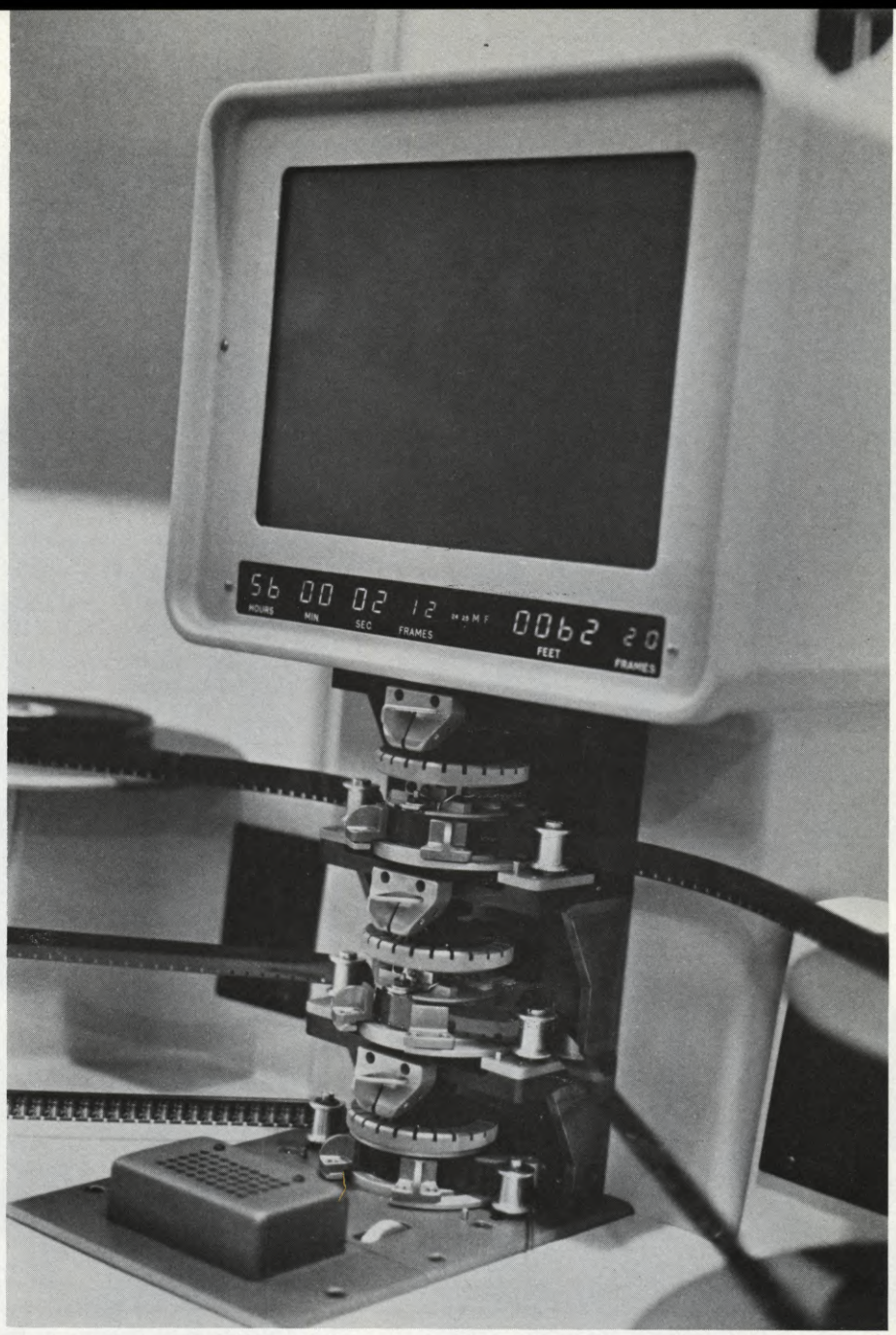
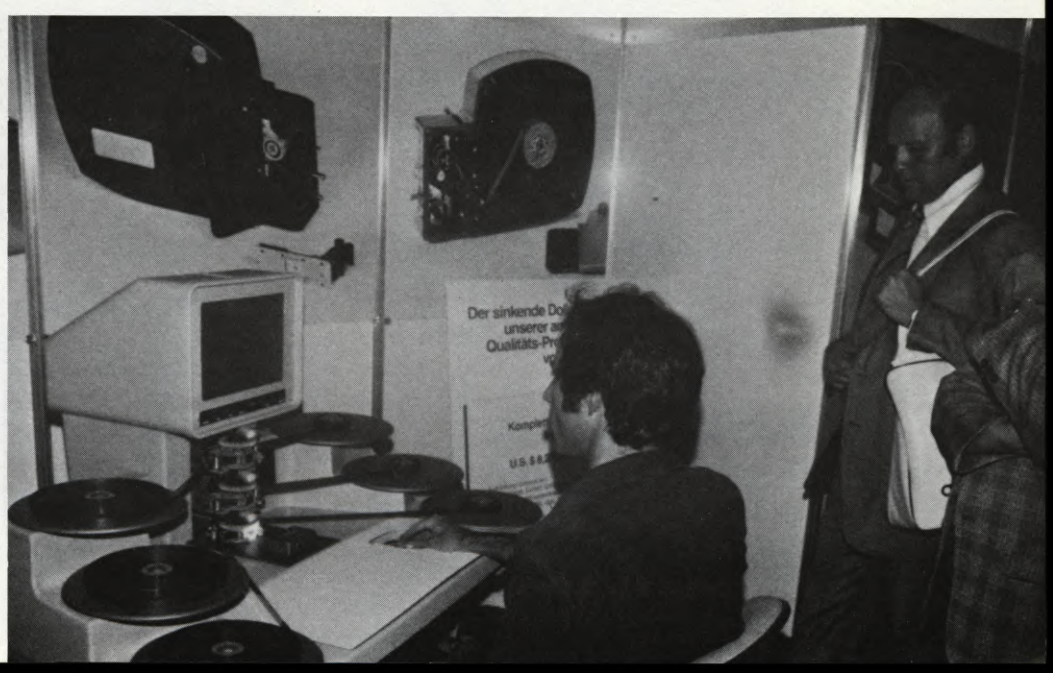


Coaxial sprocket wheel assemblies arranged in a straight-line vertical "synchronizer" configuration make threading of the U/F-16 extremely simple, eliminating the usual group of rollers and permitting handling of short lengths of film. The electronic time/footage counter, with optional keyboard entry, is designed to accept future time-base coding option. (BELOW) Young filmmaker Robert Olodort, inventor or the U/F-16, demonstrates his creation at *PHOTOKINA '78*.



Color still from "Norma Rae", filmed by John Alonzo, ASC entirely with HMI light.

HMI Light. It's Instant Daylight.

No filters, no fooling. Plug in any HMI fixture and you're producing daylight—light that reads 5600° Kelvin.

The OSRAM HMI lamps are available now in five different wattages: 200, 575, 1200, 2500 and 4000. A number of different manufacturers offer fine flood-lights and fresnels and many rental houses have both fixtures and bulbs in stock. There's a list on the opposite page.

All the OSRAM HMI bulbs share two important characteristics. First, they give you Kelvin readings for film balanced for daylight. Second, they offer incredible energy efficiency, on the order of 85-100 lumens per watt. You would need 7,000 watts of tungsten-halogen light, filtered for daylight, to get the equivalent lumen output of a single 1200 watt HMI source!

Try HMI on your next feature film, commercial or documentary. For additional technical information, check with us at our toll-free number, or with any of the suppliers listed on the opposite page.

1978 ACADEMY CITATION

The inventors of the OSRAM HMI bulb, Dr. W. Block and Dr. B. Kühl, were honored by the Academy of Motion Picture Arts and Sciences with a Citation For Technical Achievement.

Macbeth
Sales Corporation

A DIVISION OF KOLLMORGEN CORPORATION
R.D. #3 Jeanne Drive • Newburgh, New York 12550
(914) 564-6300 • Toll free: (800) 431-9980

Photo from "Norma Rae" copyright 1978 by 20th Century Fox

Where to find HMI Lights

(Partial list)

● Fixture Manufacturers

L.T.M. Corporation of America
21200 Nordhoff Street
Chatsworth, CA 91311
(213) 998-6026

Cine-Mobile
11166 Gault Street
No. Hollywood, CA 91605
(213) 764-9900

Mole Richardson
937 N. Sycamore Avenue
Hollywood, CA 90038
(213) 851-0111

Strand Century, Inc.
5432 W. 102nd Street
Los Angeles, CA 90045
(213) 776-4600

Strand Century, Inc.
20 Bushes Lane
Elmwood Park, N.J. 07407
(201) 791-7000

● Bulb Distributors

Barbizon Electric Co.
426 W. 55th Street
New York, NY 10019
(212) 586-1620

Victor Duncan, Inc.
200 East Ontario
Chicago, IL 60611
(312) 321-9406

Victor Duncan, Inc.
2657 Fondren Drive
Dallas, TX 75206
(214) 369-1165

Victor Duncan, Inc.
32380 Howard Street
Madison Heights, MI 48071
(313) 589-1900

Preferred Distributors
1114 North Sycamore Avenue
Los Angeles, CA 90038
(213) 461-4201

● Rental Houses in L.A.

Acey Decy
(213) 766-9445

Cine-Mobile
(213) 764-9900

Cine-Pro
(213) 461-4794

Cine-Video
(213) 464-6200

F & B Ceco
(213) 466-9361

Keylite Rental Corp., Inc.
(213) 848-lite

Leonetti Cine Rental
(213) 469-2987

P.S.I.
(213) 469-2704

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NEW U/F-16 EDITING CONSOLE
Continued from Page 1175

This feature of portability was aimed at the modern 16mm independent filmmaker who characteristically spends about six weeks shooting his film and the next six months in post-production. It is very impractical for him to rent an editing room for long periods of time or to rent an editing table that could be brought to his home in one or two-day intervals. With the U/F-16 it becomes entirely practical for him to either purchase the machine outright, due to its low cost, or rent it in increments as short as one day, due to its ease of portability.

In designing the U/F-16, Cinema Products followed the same design logic as with the GSMO camera: to provide the independent filmmaker with an economical, practical, reliable, yet fully professional piece of equipment. By entering the editing field with the introduction of the U/F-16 Cinema Products is in the unique position of being the only company in the film industry that manufactures both the production tool, the camera, and the post-production tool, the editing table. With this degree of total system control, the implementation of time code in an economical and practical manner is far easier to obtain than would be the case with two independent companies trying to coordinate their efforts.

FEATURES OF THE U/F-16 EDITING CONSOLE

- The basic U/F-16 design employs coaxial sprocket wheel assemblies and six terraced horizontal feed and take-up plates accepting one 16mm picture track and two 16mm magnetic sound tracks.
- Terraced arrangement makes each feed and take-up plate readily accessible to the editor without stretching. Ample table-top work area.
- Sprocket wheel assemblies arranged in straight-line vertical "synchronizer" configuration for easy marking, synching and cutting of film.
- Film and magnetic sound tracks each pass through a single sprocket wheel for quick threading and unthreading, plus safer film handling.
- Short lengths of picture and sound track may be hand-fed through the sprocket wheels without using feed and take-up plates.
- Incorporates a unique hollow polygon prism system for continuous flickerless projection on bright 8" X 10" screen.
- Crystal-controlled sync-sound speeds of 24 and 25 fps, with infinitely variable speed control from 0-240 fps, forward and reverse.
- Electronic time/footage counter with optional keyboard entry. Designed to accept future time-base coding option.
- Simplified design and modular construction for high reliability and easy maintenance.
- Portable. The U/F-16 is easily packed into cases for transport by ordinary passenger car.

The new U/F-16 editing console is priced at $7,200. ■

SYSTEM-TON SOUND EDITOR
Continued from Page 1173

ing an electronic guide saves trial-and-error time.
- Rearrangement of cues simply by reprogramming.

With separately recorded original sound:
- Automatic scene numbering for rapid location and sorting after film cuts.
- Automatic separation of erasing and recording—thereby saving time by rerecording in the original sequence.
- Automatic consideration of any frames cut from starts of scenes when rerecording—programmed via detachable keyboard panel.
- Automatic consideration of any frames dropped from the ends of scenes—no information needs feeding in at all.

With sound cameras:
- The solution to the cutting problem considered insoluble so far. No loss of sound and no sound lag behind each scene change.
- Automatic darning of sound gaps left by the camera saves 18 frames per scene.

For mixing:
- Smooth lowering of volume—automatically—*before* the speech passage.
- Automatic consideration of different lengths of utterances with dubbed versions.
- Correct control on cue thanks to automatic optical and acoustic guide.

For later alterations:
- Exchanging music and text passages without cutting tapes.
- Abridging the film without cutting tapes or losing sync.

What is more:
Various checklists and program templates to suit equipment available and to meet special requirements.

Checklist holder set in the lid with LED reading guide to save poring over complicated instruction booklets.

System-Ton Specifications

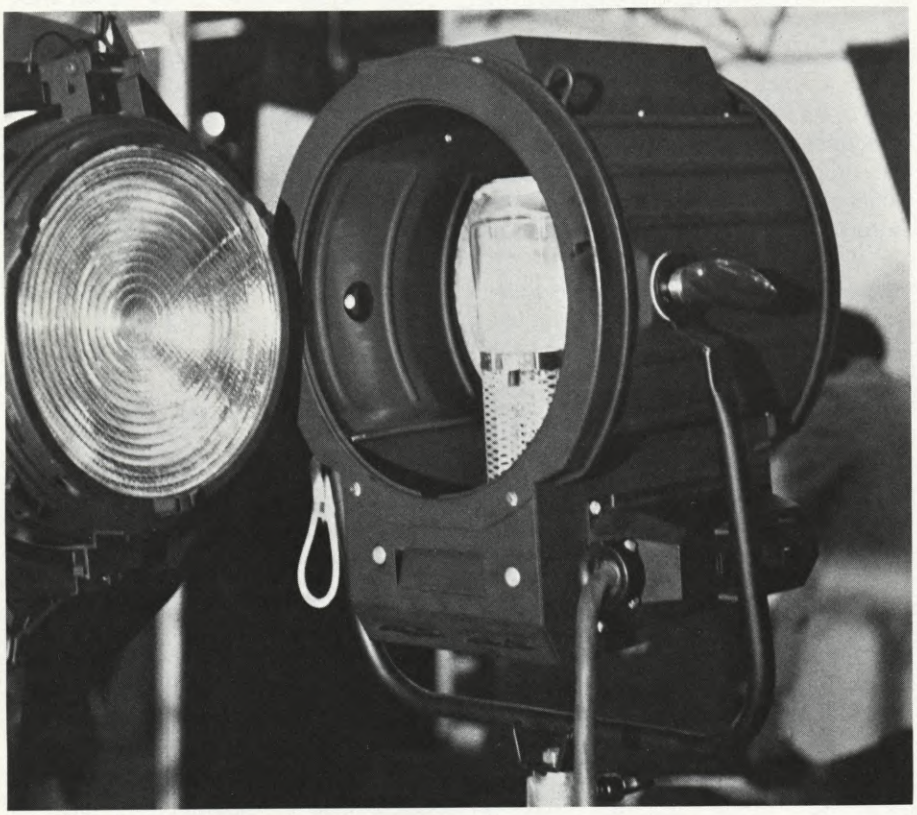
Sound editing device for Super-8 and 16mm films, 24/18 fps, 4 precision drives integrated, for CrO_2 musicassettes, 9.5 cm/sec. tape speed, synchronizing by

Continued on Page 1227

FIVE NEW LIGHTS FROM QUARTZCOLOR IANIRO

A range of interesting new luminaires for use in cinematography or TV that accommodate not only HMI lamps, but, for the first time, the exotic new tin-halide lamp from Philips, introduced at *PHOTOKINA*

Quartzcolor Ianiro of Rome introduced a variety of new lighting instruments at *PHOTOKINA '78.* In several instances, the equipment represents the initiation of complete new lines—such as the new compact, lightweight, 10″, 5000-watt Fresnel spotlight, the BABY POLLUX. In addition, the company showed the first professional fixture in the world that utilizes the new tin-halide lamp introduced by Philips at this same exhibition—the SIRIO.



The company's answer to the need for a 200-watt HMI portable light is the new RIGEL. It is unique in that it is intended to meet the requirements of most documentary and newswork by operating from standard line voltage outlets and is "flicker-free". The unit is claimed to be much simplified, and should prove more reliable than those which also offer the option for 30-volt battery operation.

The Ianiro tradition of fiberglass housings for their small tungsten-halogen lighting units is continued in the new PULSAR 650-watt model. These well-proven configurations, offering compactness, high performance and great ruggedness, have been well accepted around the world.

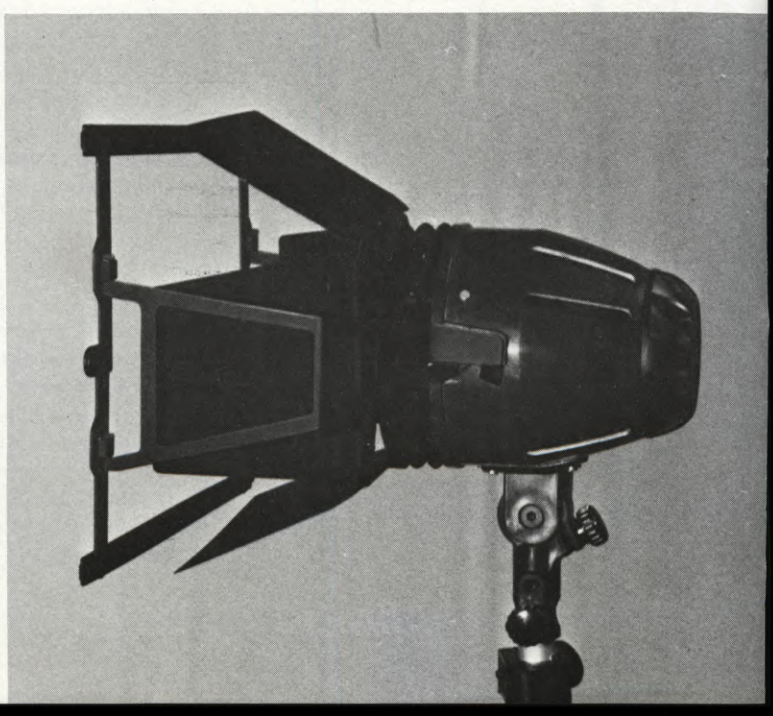
Following are brief descriptions of the new lights exhibited by Quartzcolor Ianiro at *PHOTOKINA '78:*

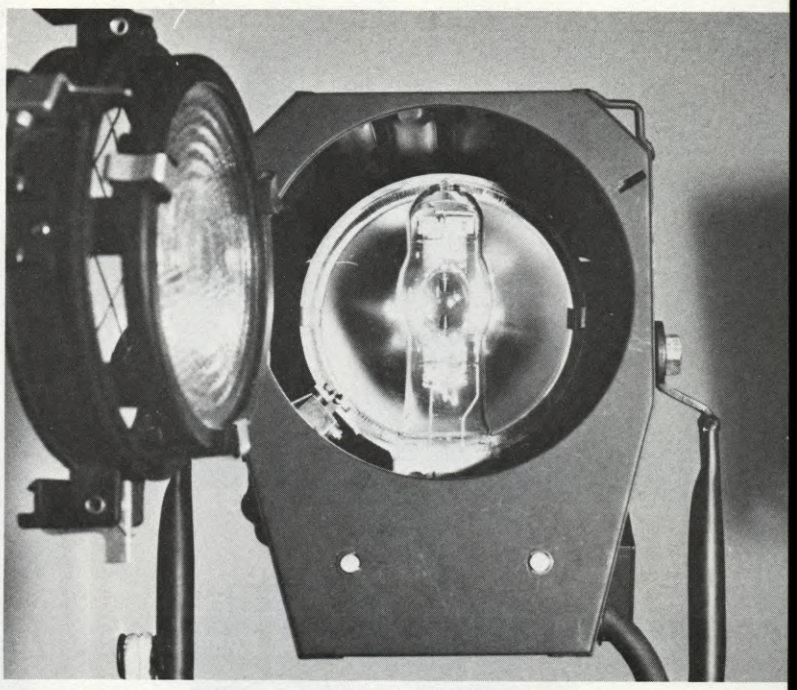
BABY POLLUX

This 10-inch, Fresnel lens, 5,000-watt spotlight is the first of a completely new range of lighting instruments being introduced by Quartzcolor Ianiro. It is a high-performance unit specifically designed for use in cinematography or TV location work. Its excellent performance characteristics include a smooth field of coverage and a nearly 4:1 focus ratio (beam angle of 12° to 46½°).

The ventilation arrangements have been accomplished so that full-rated

(ABOVE LEFT) The BABY POLLUX, a 10-inch, fresnel lens, 5,000-watt spotlight, is the first of a completely new range of lighting instruments being introduced by Quartzcolor Ianiro. (BELOW) The Model 3130 PULSAR, a 650-watt tungsten-halogen open reflector luminaire featuring a heavy-duty fiberglass housing for rugged location use. Unique ventilation design keeps the unit unusually cool, even after long operation.





Two view of the new SIRIO 1KW Tin-Halide Spotlight, the first spotlight design in the world to utilize the tin-halide lamp introduced by Philips at *PHOTOKINA '78*. This AC-operated "daylight" source arc lamp has exciting potential, even though, at present, hot restrike of the unit is not possible. However, further development should produce this result. The SIRIO features the excellent spot/flood ratio of 10:1.

lamp life can be achieved in this extremely compact unit. Particular attention has also been paid to the ruggedness of the unit, based on its intended field of application.

Including a 23-foot (7 m) input cable for 120-volt applications, the unit weighs only 25 pounds (11.5 kg). A 2 KW unit will be introduced shortly.

RIGEL 200-Watt HMI Floodlight

This new rugged, compact, lightweight design is an open reflector floodlight, featuring a "flicker-free" ballast which operates from 120-volt, 60 Hertz line or generator (A.C. only).

The unit remains relatively cool after extended operation, and can be utilized either on a stand, or with an accessory handle, as a hand-held unit.

The weight of the unit is just 5 lbs (2.4 kg), including a 10 ft. (3 m) cable for connection to the ballast. The available accessories include barndoors, scrims, color frame and the aforementioned handle.

MODEL 3130 PULSAR

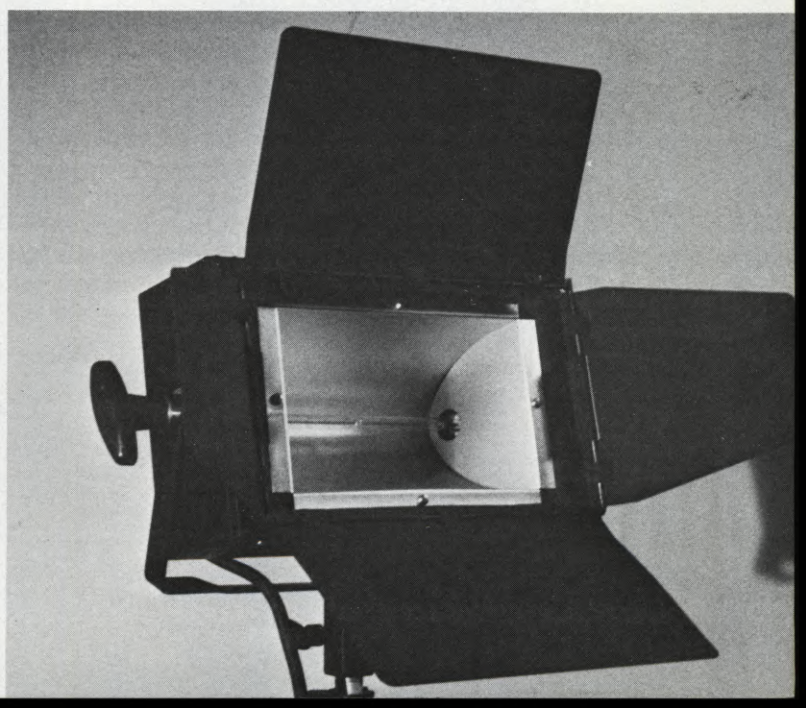
This 650-watt tungsten-halogen, open reflector luminaire has a fiberglass housing for the rugged type of duty usually given these units. A further feature of the fiberglass construction, and the ventilation design, is that the unit remains unusually cool even after long operation.

A particular feature of this design is the new mounting system, which reduces the size of the unit over lights having the more conventional yoke mount. This permits packing more equipment into less space for more compact lighting kits.

At a 10-foot distance (3 m), the spot is 300 footcandles with a beam of 36°, and the flood is 95 fc with a 74° beam. These

Continued on Page 1205

Model 3240 BROAD (with and without barndoors) is a new compact fixed-focus floodlight that can utilize either the 1,000-watt FFT or 1,500-watt FDB tungsten-halogen lamps. It may be applied instead of a scoop or softlight in many situations, particularly with the outrigger accessory fitted, which permits the use of standard diffusion materials to soften lighting effects. Barndoors are also available as an accessory.



Kodak thanks the Academy for honoring

EASTMAN 5243

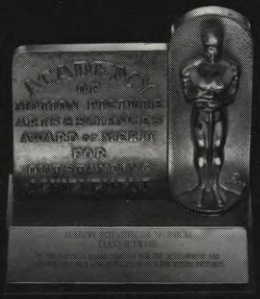
Color Intermediate II Film.

The award to Eastman Kodak Company from the Academy of Motion Picture Arts and Sciences is particularly gratifying to us, because Eastman 5243 film is the film "almost no one ever sees." As an intermediate film intended for making color master positives and color duplicating negatives, it is an *essential* element in getting the final picture on the screen.

Kodak now makes more than thirty professional motion picture films. Our search for improved motion picture technology is part of our commitment to the industry.

We set out to give filmmakers a way to produce color duplicate negatives with improved quality. This recognition by the Academy, as well as the satisfaction of our customers, is indeed rewarding.

We thought you'd like to read the opinion of some others in our industry.



©A.M.P.A.S®

Frank Van der Veer, A.S.C.
President, Van der Veer Photo Effects.

"It's very annoying to send a lemon commercial to the lab and get it back looking like oranges. What makes Eastman 5243 film so helpful to all of us in the photo effects business is that it is about as true to color as you can get. You don't have to keep fiddling around to try and get face tones and objects looking right without sacrificing one or the other. The color you have in the original negative is the color you have in the duplicating negative.

"The grain is almost non-existent, and that is important because often we have to blow up the original.

"I like the definition, the crispness and mainly the dependability. We try hard to arrange it so as to wind up with as few generations as possible but sometimes a number of them is unavoidable. If there were any problem areas they would multiply, and it would be most noticeable in going from original negative to dupe.

"Eastman 5243 film doesn't surprise you in the viewing room. It does its job quietly and very efficiently."

Linwood G. Dunn, A.S.C., Ph.D.
Founder and President of Film Effects of Hollywood, and President of the American Society of Cinematographers.

"Kodak color intermediate II film 5243 is the film we now use to make duplicate color negatives... which are almost never noticed. Because of this achievement, I call 5243 intermediate the 'unsung hero' of film stocks, as it really helps us to realistically put our magic into movies. We can now retain in our special effects the color fidelity, sharpness and overall quality of the original photography through the duplication process without the risk of excessive handling of the original negative. We intercut 5243 optical effects next to the original negative, and you don't notice a change in screen quality. Without such a tool, the illusion we are trying to create could easily be destroyed.

"Two more important points: First, you can make a 5243 protection master of the entire production to store in a vault, thus substantially reducing insurance costs. Second, because of its increased film speed, the 5243 intermediate film is much more suitable for emulsion-to-emulsion contact printing, thus dramatically reducing transfer of any surface abrasions and imperfections from the original negatives that would be visible through the optical printing step required for the color reversal duplication system.

"As a member of the Scientific and Technical Awards Committee of the Motion Picture Academy, I strongly supported the award given Eastman Kodak Company for scientific achievement in its development of the 5243 intermediate, 'The magic film that nobody sees.'"

Robert Blalack
President, Motion Pictures, Inc. Oscar Award-Winner for Visual Effects on "Star Wars."

"When you want top screen quality in optical effects, you tackle all the components involved in the optical process—illumination, lenses, color separations and matte stocks. And then all your efforts end up on the dupe negative stock.

"Kodak asked me to test this stock just as *Star Wars* was getting under way. The results were impressive. Our travelling matte opticals became extremely sharp, and that added a new realism.

"The minimal grain and clear colors give you the feeling you are right there. Eastman 5243 film made a definite contribution to winning the Oscar.

"Eastman 5243 film is one full stop faster than its predecessor. That's an added plus, particularly when you are compositing from color separations, as I did in *Star Wars*.

"We had some scenes in *Star Wars* that were made up of 72 pieces of film—mattes, separations and intermediates. Every one of them was made on one of the vast selection of Kodak film stocks. But the stock that had to finally carry the ball was 5243.

"At Motion Pictures, Incorporated, we are committed to no-compromise, top-quality visual effects. And one key decision we have made—from experience—is to use the diverse and useful family of films from Kodak, of which Eastman 5243 film is a welcome newcomer."

If you would like to know more about Eastman color intermediate II film 5243, ask your Kodak sales and engineering representative at one of the offices listed below.

Kodak

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ATLANTA: 404/351-6510
CHICAGO: 312/654-5300
DALLAS: 214/351-3221
HOLLYWOOD: 213/464-6131
NEW YORK: 212/262-7100
ROCHESTER: 716/254-1300
SAN FRANCISCO: 415/776-6055
WASH., D.C.: 202/554-9300

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Kodak... Official motion picture consultant to the 1980 Olympic Winter Games.

"GSMO" CAMERA SOON TO BE AVAILABLE

Shown at *PHOTOKINA '78* in "ready-to-go" form, this long-awaited, totally new and fully professional compact 16mm reflex camera system will soon be marketed by dealers throughout the world

The handsome new compact GSMO 16mm camera from Cinema Products Corporation has been "sneak previewed" in prototype form at several recent major trade shows, including FILM '77 in London and last year's SMPTE Conference in Los Angeles. Following the classic pattern typical of other major camera manufacturers (and just about all of them are guilty of it), Cinema Products has allowed a bit of a gap to develop between the previews and the production model. But when one considers that it took almost six years for the Arriflex 35BL to finally become available, the "cry wolf" syndrome, in this case, probably isn't all that serious.

In any event, the GSMO was shown again at *PHOTOKINA '78* in what was represented as its "final frozen design" incarnation and it elicited considerable positive response. Moreover, the Cinema Products powers-that-be who were present assured visitors to their stand that the GSMO will, indeed, be available for sale as a production unit early in 1979. Let's hope so.

The GSMO is described by its manufacturer as "a totally new and fully professional 16mm reflex camera system. Designed for ease of operation, the GSMO is today's 'state-of-the-art' 16mm camera system, incorporating the most advanced and sophisticated design features available through modern technology."

Extremely compact and ultra-lightweight, the GSMO is a highly sophisticated, sync-sound quiet 16mm camera featuring quick-change cassette-type coaxial magazines in three sizes: 30m (100 ft), 60m (200 ft) and 120m (400 ft). The specially designed magazines are intended for rugged use, and feature automatic loop-forming devices for quick and easy loading. (Preloaded magazines can be changed instantly without touching the film.)

A complete GSMO camera outfit *ready-to-shoot,* with NC-4 battery pack, CP standard 12X viewfinder, 120m (400-ft) magazine fully loaded with film, and Angenieux 17.5-70mm T/2.5 zoom lens, *weighs only 5.4kg (11 lbs. 14 oz.)!*

The optical system features a single-blade, full-speed rotating mirror shutter set at a 45° angle, providing a 180° shutter opening. The mirror clearance is such that the camera will accept any reflex type lens that fits on any of the existing Arriflex and Eclair cameras (with proper CP mount adapter).

The GSMO camera drive system is of unique construction. A miniaturized, highly-efficient crystal-controlled motor and gear train are embedded in a solid aluminum block to achieve maximum noise attenuation. All the electronics are located on an extremely compact circuit board using CMOS and hybrid IC's for maximum component density. As a consequence, the GSMO features crystal-controlled sync-sound speeds of 24 and 25 fps, as well as crystal-controlled, step-variable speeds ranging from 12 to 64 fps. The circuit board also provides auto slating and pilotone outputs, as well as an electronic digital footage counter.

A full range of options and accessories includes: CP semi-automatic exposure control system (with LED exposure indicators in the viewfinder), CP orientable viewfinder system, J-5 zoom control system, remote speed control to provide continuously variable speeds in the range of 12-64 fps, adjustable handgrips, shoulder pods and braces, etc.

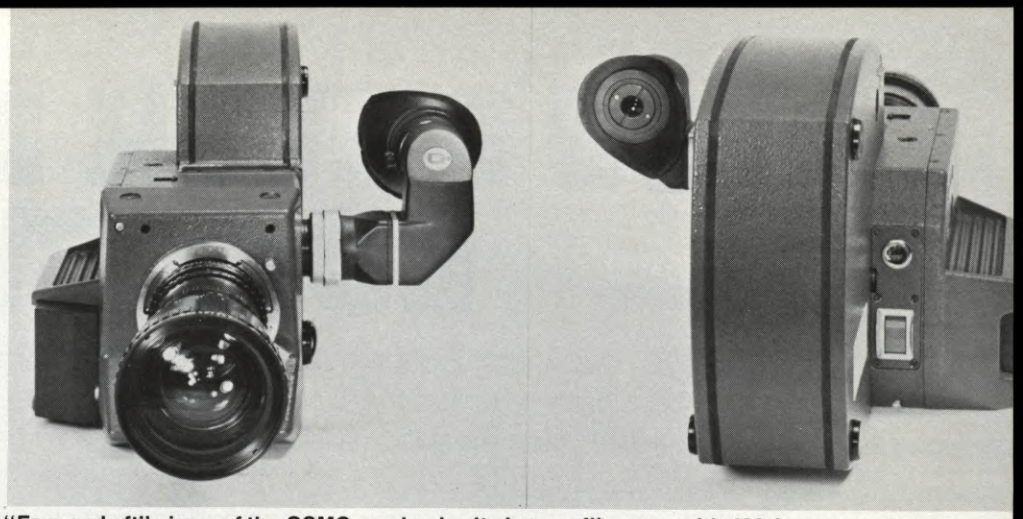
Complete with NC-4 battery pack, CP Standard viewfinder, zoom lens and 400' magazine loaded with film, the GSMO weighs under 12 lbs.

GSMO shown with CP orientable viewfinder (and 7" extender) and Sachtler 1+1 SB fluid head tripod.

Cinema Products new GSMO camera (shown here with 400-foot coaxial magazine) is a highly sophisticated, sync-sound, quiet 16mm camera featuring quick-change cassette-type magazines in three sizes. It is shown here with Angenieux 17.5-70mm, T/2.5 zoom lens and CP standard 12X viewfinder.

With its sound level guaranteed not to exceed 30 dBA—measured 1m (3 ft) from the film plane—the GSMO is the ideal double-system sound production camera for all phases of 16mm cinematography: commercials and TV documentaries, educational and industrial films, military combat applications, student film-making, etc.

A complete GSMO camera/lens package—including camera body, viewfinder, 120m (400 ft) cassette-type magazine, two battery packs and two chargers, shoulder pod with adjustable handgrip and on/off switch, fitted Halliburton carrying case, plus Angenieux 17.5-70mm T/2.5 zoom lens with 12.5-50mm retro-zoom attachment—is priced at $8,275.00.

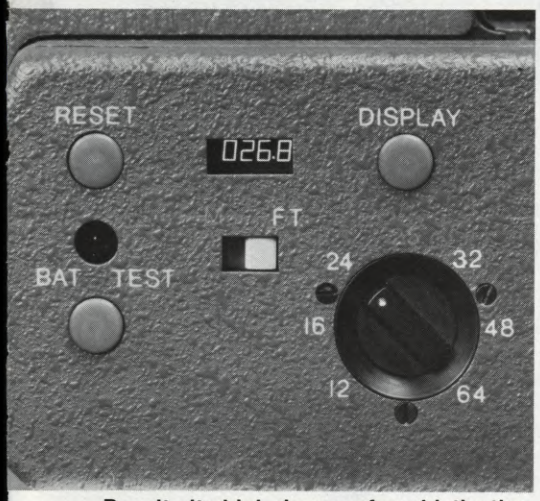


"Fore and aft" views of the GSMO emphasize its low profile, even with 400-foot magazine attached. Options include: CP semi-automatic exposure control, CP orientable viewfinder, J-5 zoom control, remote speed control (12-64 fps), adjustable handgrips, shoulder pods and braces.

GSMO—Description and Specifications

Camera Drive System: The GSMO camera drive system is of unique construction, embodying the most recent advances in electronics and mechanical technology. A miniaturized, highly-efficient crystal-controlled motor and gear train are embedded in a solid aluminum block to achieve maximum noise attenuation.

All the electronics are located on an extremely compact circuit board using CMOS logic and hybrid electronic circuits for maximum component density. In addition to crystal-controlled step-variable speeds of 12 to 64 fps, the circuit board also provides auto slating and pilotone outputs, as well as an electronic digital footage counter.



Despite its high degree of sophistication, GSMO external controls and indicators are kept very simple.

Film Transport System: The movement consists of a high-precision, single-claw sinusoidal registration movement, with a curved film gate for minimum pulldown time. The interchangeable film gate assembly with its floating pressure plate and hard-chrome-edge film guides is located in the cassette-type coaxial magazine, which also features automatic loop-forming devices for easy loading.

Frame line accuracy:
±.05mm (.002″)
Picture steadiness:
±.0076mm (.0003″)

Magazines: Specially designed quick-change, cassette-type coaxial magazines, intended for rugged use, feature automatic loop-forming devices for quick and easy loading. (Preloaded magazines can be changed instantly without touching the film.) The interchangeable film gate assembly has a removable pressure plate for easy cleaning. Available in 30m (100′), 60m (200′) and 120m (400′) capacities. The 120m (400′) magazine also features a "film remaining" manual indicator which reads: "E-¼-½-¾-F"

Digital Footage Counter: Reads in feet (full feet) or meters (full meters and tenths of meters) as desired.

Sync-sound Speed:
Crystal-controlled 24 fps or 25 fps.

Camera Speed Range: Crystal-controlled step-variable speeds of 12, 16, 24, 25, 32, 48 and 64 fps.

Speed Accuracy: ±30 ppm over a temperature range of −18° to 60°C (0-140°F) for all crystal-controlled step-variable speeds from 12 to 64 fps.

Sound Level: 30 dB max. measured at 1m (3′) from film plane on the weighted "A" scale.

Film Size: 16mm single or double perforated, "B" wind, core load or daylight load.

Film Capacity: Quick-change, cassette-type coaxial magazines designed to accept:
30m (100′)—daylight load
60m (200′)—daylight load
120m (400′)—core load or daylight load

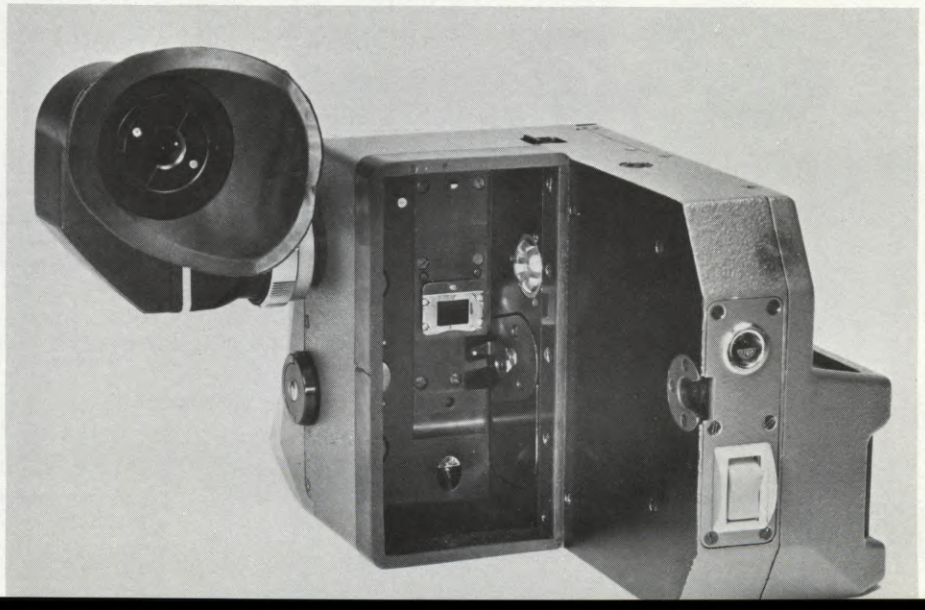
Rotating Mirror Shutter: Single-blade, full-speed belt driven mirror shutter set at 45° angle; stops automatically in viewing position.

Shutter Opening: 180°

Shutter Speed: 1/48th second @ 24 fps (f/50th second @ 25 fps)

Continued on Page 1236

GSMO camera head onto which fit 30m (100′), 60m (200′) and 120m (400′) quick-change, cassette-type magazines. (Preloaded magazines can be changed instantly without touching the film.) The interchangeable film gate assembly has a removable pressure plate for easy cleaning.



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The things you're asked to do! Now that people have discovered how valuable and flexible video can be, there's no limit to the things they want you to do with it. Which creates some terrific opportunities...and more than a few production problems as well. At Cine 60, we're specialists in designing new products to help you get more of the former. With less of the latter.

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"We have one of the first CP-16's and it's still our only camera."

Albert and David Maysles with their CP-16 camera used on their feature film *Grey Gardens* and commercials for Citibank, TWA and IBM.

"This is a camera you can depend on. Recently, we used it on two trips around the world for Citibank, and it *never* failed us. That's millions of feet of film."

"We feel totally *secure* without a second camera—even in situations where you only get one chance."

"Our CP-16 is rugged and *never* tiring. You can't beat it for reliability."

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LOWEL INTRODUCES FOUR NEW OMNI-LIGHT LOCATION LIGHTING KITS AT PHOTOKINA

Four new extremely compact and lightweight kits that provide impressive amounts of advanced lighting equipment for film or TV shooting under a wide range of varying location conditions

Lowel-Light Manufacturing, Inc., specialists in the manufacture of lightweight location lighting systems for motion picture, television and still photography, highlighted their *Photokina '78* equipment exhibit with the European introduction of four new location lighting kits featuring the versatile new Omni-light™ and Omni-system™.

The new light, first seen in prototype form at *Photokina '76,* is Lowel's latest and most compact focusing spot light. Amongst its many distinctive features are a built-in, fold-away handle for complete one hand focus and position control, a fold-away bracket to support an umbrella or gel frame, a series of interchangeable reflectors for special lighting applications, and a unique barndoor system for precise light patterning. These items, plus Omni's ability to operate from 110V or 220/240V line or 30V battery power sources, the availability of many traditional and novel new front end accessories, and the inherent high output of the light, combine to make Omni an extremely flexible location lighting tool.

Two of the new kits use Omni-lights only with related accessories. These are the Omni 4 Kit (code 01-94), a four-light package, and the Omni News Kit (01-90), a three-light package designed to meet the special demands of news coverage. Two "mixed" kits, the Ambi Kit (01-95) and the Solo Kit (01-96), feature both Omni-lights and Tota-lights™. The Tota-light, with its broad angle of coverage, shares most of its accessories with the focusing spot Omni and is an excellent companion light for it. The Ambi Kit has two Omni-lights and two Tota-lights, and the Solo Kit has four Omni-lights and two Tota-lights. Both kits have an extensive range of system accessories. These kits join the Omni 3 Kit (01-93), the three-light package of Omni-lights and accessories originally introduced in prototype form at *Photokina '76.*

Lowel Omni-Light

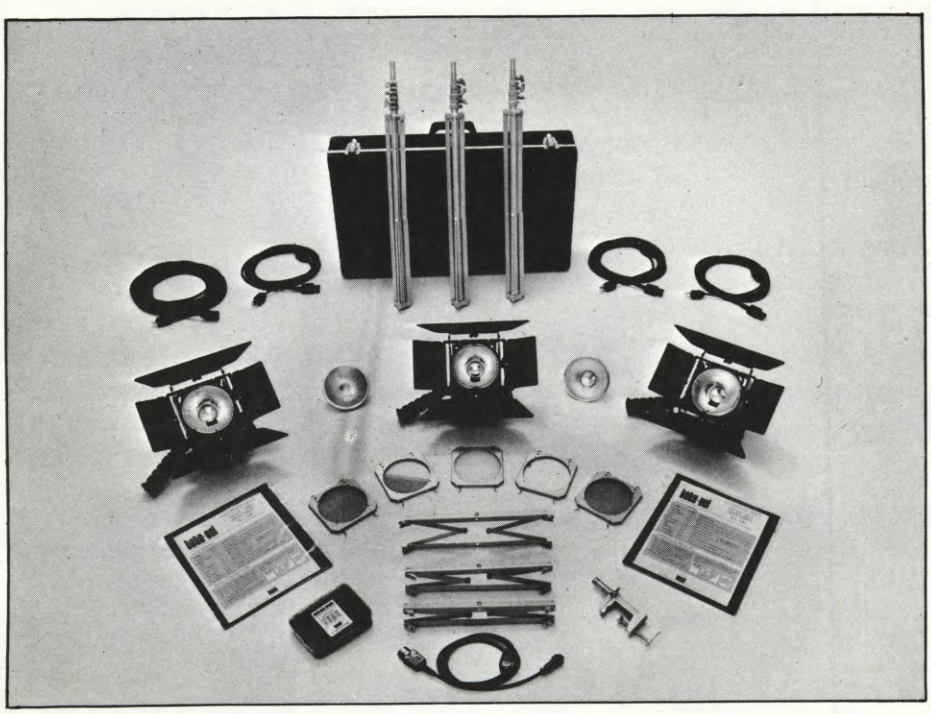
The "centerpiece" of all of the new Lowel kits introduced at *PHOTOKINA '78* is Lowel's highly successful Omni-light, which has been continuously refined to meet the modern filmmaker's needs since its introduction in prototype form two years ago. In the following, the manufacturer explains the design concept of this versatile light:

Lowel is committed to functional design. This means equipment built to handle difficult locations–by combining ***versatility, responsiveness,*** *and* ***ruggedness.***

The Omni-light is versatile. *It operates on three voltages with uncompromised output. Our exclusive instant-interchange reflectors make this possible. Most uses require just one reflector; four are available. All interchange in seconds without tools. The #1 reflector is shaped for 120-240v filaments. The #2 has special embossing for 30v lamps. The #3 makes Omni-light a long throw high-intensity instrument at all voltages. And #4 is gold for warm effects.*

All but the non-focusing super-spot use Lowel's double-parabolic configuration (pat. pend.). They give astonishing spot/flood ranges–up to an unprecedented 11:1 (see "performance"). None have been dulled or compromised by cross-over patterns. So Omni-light provides greater efficiency, shadow control and gel life. Eight barndoor ac-

Continued on Page 1224

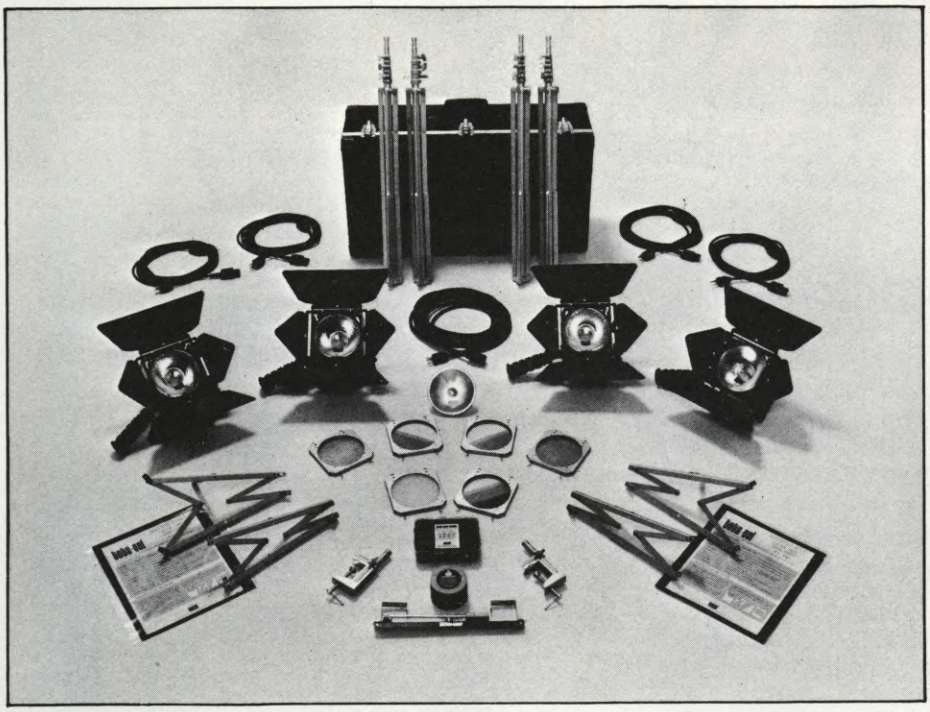


omni news kit

kit code: 01-90

specifications
size: 28″×17½″×6″ [72×44×15 cm]
weight: 35 lbs. [15.8 kg]
materials: rugged, high density polyethelene
compartments: see "customizing"

contents
3 omni-lights with #1 reflectors, 16′ cables (less lamps) 01-10
1 #2 reflector (for 30v. lamp) 01-16
1 #3 super-spot reflector 01-17
3 barndoors—complete 01-20
1 diffused safety glass 01-50
1 dichroic filter 01-51
2 full scrims 01-54
1 half scrim 01-55
3 tota-frames T1-20
2 packages assorted gels T1-78
3 omni-stands 01-33
1 tota-clamp T1-30
1 30v. cable—5′ 01-81
1 extension cable—25′ LQE25
1 omni-lampak 01-61
1 case 01-84



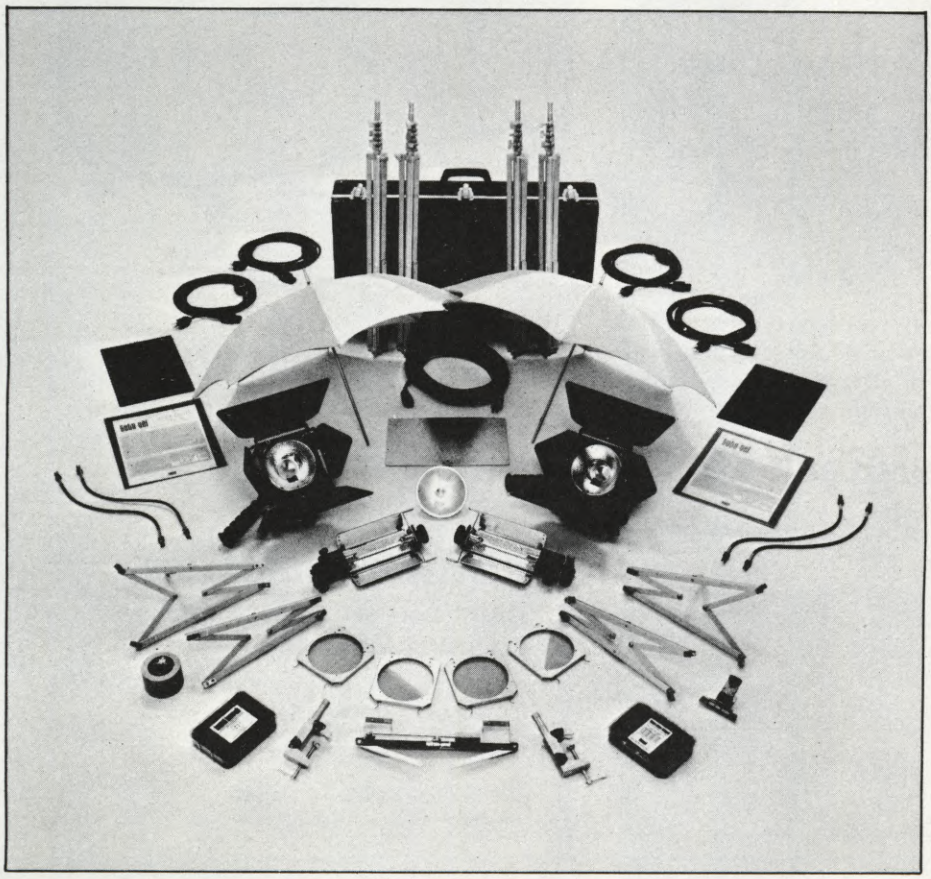
omni 4 kit

kit code: 01-94

specifications
size: 28″ ×17½″ ×8¾″ [72 ×44 ×22 cm]
weight: 44 lbs. [20.1 kg]
materials: rugged, high density polyethelene
compartments: see "customizing"

contents
4 omni-lights with #1 reflectors, 16′ cables (less lamps) 01-10
1 #3 super-spot reflector 01-17
4 barndoors—complete 01-20
1 diffused safety glass 01-50
2 full scrims 01-54
2 half scrims 01-55
1 graduated scrim 01-56
4 tota-frames T1-20
2 packages assorted gels T1-78
4 omni-stands 01-33
1 tota-mount T1-32
1 gaffer-tape, 12 yds. GT-12
2 tota-clamps T1-30
1 extension cable—25′ LQE25
1 omni-lampak 01-61
1 case 01-86

The four new kits shown on these pages, and introduced at *PHOTOKINA '78*, are designed to augment other kits and combinations previously made available by Lowel-Light Manufacturing, Inc. In addition, the versatility of the equipment makes possible the assembling of "custom" kits specifically designed to meet the special needs of individual cameramen. The wide range of Lowel equipment currently on the market stemmed originally from the practical need of a working cameraman, Ross Lowell, for compact, lightweight, ruggedly dependable lighting gear for use on his documentary and location assignments. The current line of highly sophisticated Lowel equipment still meets these criteria.



ambi kit

kit code: 01-95

specifications
size: 28″ ×17½″ ×6″ [72 ×44 ×15 cm]
weight: 44 lbs. [20.1 kg]
materials: rugged, high density polyethylene
compartments: see "customizing"

contents
2 omni-lights with #1 reflectors, 16′ cables (less lamps) 01-10
2 tota-lights, 16′ cables (less lamps) T1-10
1 #3 super-spot reflector 01-17
2 barndoors—complete 01-20
2 full scrims 01-54
1 half scrim 01-55
2 tota-brellas T1-25
4 tota-frames T1-20
2 packages assorted gels T1-78
2 tota-flags T1-52
1 tota-flector T1-54
4 flexi-shafts—16″ (2) T1-50
1 tota-tatch T1-34
4 omni-stands 01-33
1 tota-mount T1-32
1 gaffer-tape, 12 yds. GT-12
2 tota-clamps T1-30
1 extension cable—25′ LQE25
1 omni-lampak 01-61
1 tota-lampak T1-61
1 tota-packet 01-65
1 case 01-84

The MINI-RACK
A Modular System

Here's how it all stacks up...
with projector and:

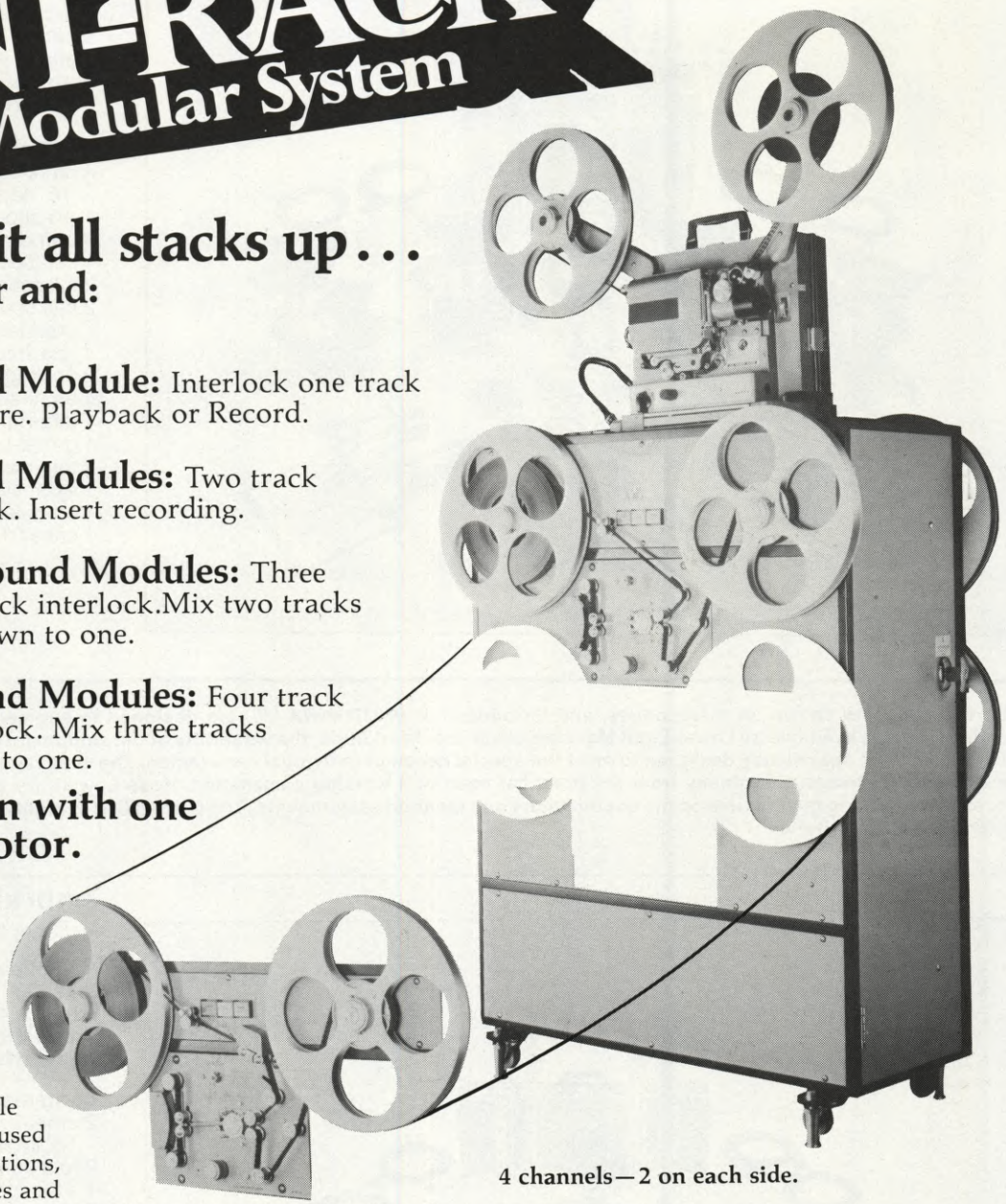
One Sound Module: Interlock one track to picture. Playback or Record.

Two Sound Modules: Two track interlock. Insert recording.

Three Sound Modules: Three track interlock.Mix two tracks down to one.

Four Sound Modules: Four track interlock. Mix three tracks down to one.

... and all driven with one synchronous motor.



4 channels—2 on each side.

The PAG Mini-Rack, suitable for tele-cine application, is used world wide in television stations, schools, production facilities and wherever there exists a need for a sound system which offers broadcast quality. The affordable Mini-Rack is dependable, flexible, portable, easy to operate and inexpensive to maintain. You can start your system with the Mini-Rack, a projector and one sound channel. And, since the Mini-Rack is pre-wired, you can add any number of additional channels as you continue to build your system.

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From Playboy Magazine

—Total of $4500 in Awards
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DATSUN VEHICLES

First Place Winners of Filmmaking & Film Study Scholarships each receive Datsun's new front-wheel drive 310 and a Datsun pick-up truck for their respective schools

The third annual FOCUS Competition will be presenting the above awards to students exhibiting exceptional talent in the areas of filmmaking, film study, sports film proposal and film production.

Ask for information at your Film, English or other appropriate Department, or write directly to:

FOCUS '79
1140 Avenue of the Americas
New York, New York 10036

Entry Deadline—February 1, 1979

All winners will be flown to Los Angeles for the FOCUS Premiere and Award Ceremony conducted in association with Filmex: The Los Angeles International Film Exposition.

THE LEE 200 STROBE-FREE PORTABLE HMI LIGHT

An impressive portable 200-watt HMI light that can operate from battery pack, mains current or four standard automobile batteries connected in series is a versatile source for film and TV shooting

Shown at *PHOTOKINA '78* to excellent reception was the LEE 200-Watt Strobe-free Portable HMI Light. This is an update of a unit that was originally introduced in 1975, but was discontinued because of the less expensive competition that prevailed at the time. Now, due to the pressures of demand, it is back in production.

The unit, with inverter/battery pack weighing 28 lbs., can be hand-held for portable newsgathering and documentary shooting, but is designed to be even more valuable for shooting in problem film and TV locations. Its compact design makes it ideal for use in automobiles, aircraft cockpits, buses, small watercraft, camera cars, etc.

The inverter requires 48-volt DC current, but the supply to the lamp head is at 2,000 Hz AC. Therefore, the light frequency is 4,000 Hz, with only a 10% fluctuation. Consequently, it is possible to use the lamp for filming at high or low speed without strobing.

The detachable Ni-Cad battery pack will operate the unit for 30 minutes with constant light transmission and color temperature. The Ni-Cad cells are protected by an automatic cut-out which is tripped when the charge has expired. Should the color temperature begin to drop, the unit will shut off automatically.

It is also possible to run the unit off four standard automobile batteries connected in series, by detaching the Ni-Cad battery pack and plugging the group of automobile batteries directly into the inverter. When heavy-duty automobile batteries are used, this method will provide up to 10 hours of shooting time, depending upon how many units are being supplied. When used with rectifier, the unit will also operate directly off AC mains current.

Several safety features have been incorporated to insure against the unit shorting out. For example, the ON/OFF switch is waterproof, so there is no danger of it shorting out in the rain.

Extremely powerful for its size, the LEE 200-watt HMI unit is said to put out as much daylight color temperature illumination as a 2,000-watt tungsten-halogen lamp with daylight blue filter.

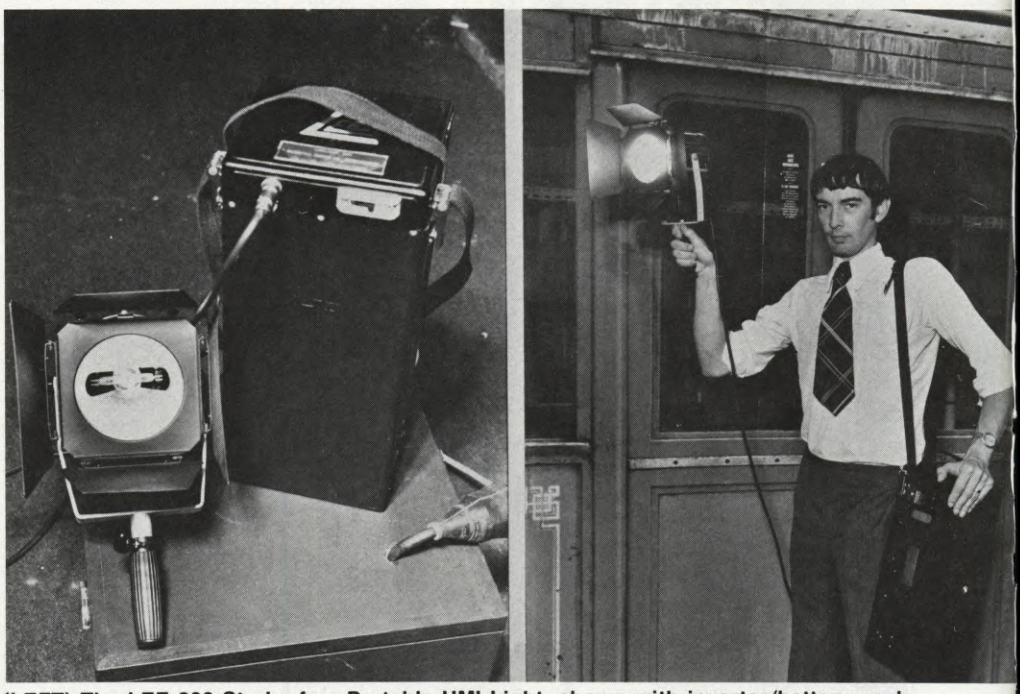
The complete package includes: the lamp, ballast, battery pack, barndoors and connecting cable. The rectifier is available separately as an accessory.

The LEE 200-watt Portable HMI lamp is currently in production and is immediately available from Lee Enterprises Ltd., 128 Wembley Park Drive, Wembley, Middlesex HA9 8JE, England. Tel: 01-903 9811.

It is available in the United States from Belden Communications Inc., 25 West 45th Street, New York, NY 10036. Tel: (212) 730-0172. ■

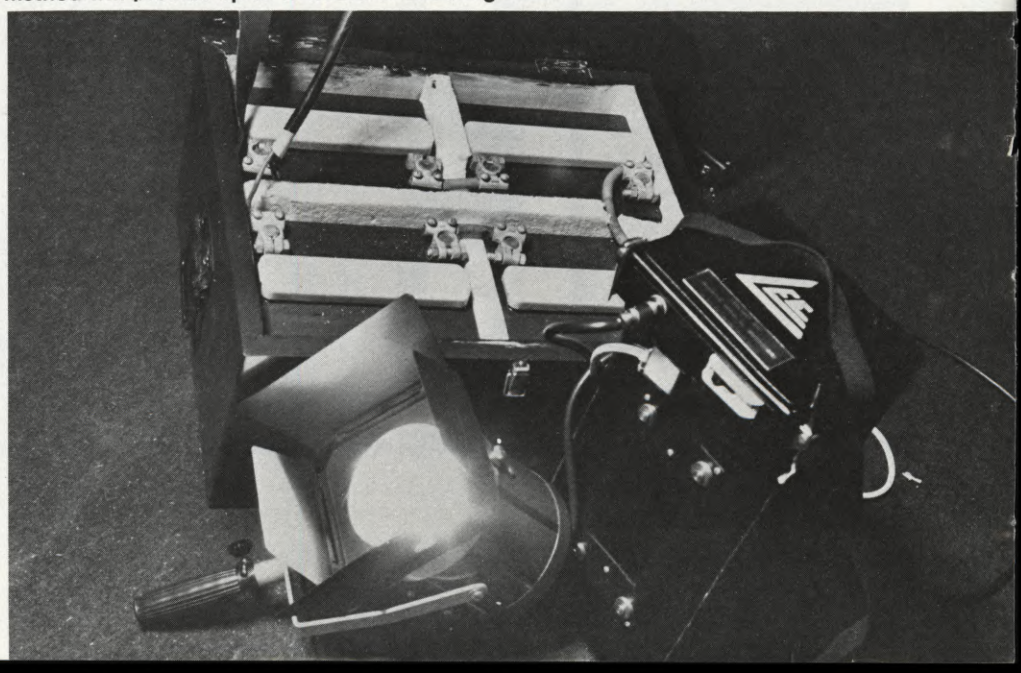
SPECIFICATIONS

LAMP HEAD	INVERTER WITH BATTERY PACK	CHARGER
DIMS. H. 9″x6″x6″ WEIGHT 5 LBS.	DIMS. 18″x7.5″x6.5″ WEIGHT 28 LBS. SUPPLY. 48 VOLT DC	DIMS. 9″x6″x4.5″ 6 LBS. WEIGHT SUPPLY 120V-240V



(LEFT) The LEE 200 Strobe-free Portable HMI Light, shown with inverter/battery pack, which will operate the unit for 30 minutes at constant color temperature. (RIGHT) It can be used hand-held for newsgathering or documentary assignments, as shown here.

As an alternative, the LEE 200 Light can be run off four standard automobile batteries connected in series, by detaching the Ni-Cad battery pack and plugging the group of automobile batteries directly into the inverter. When heavy-duty batteries are used, this method will provide up to 10 hours of shooting time.



Introducing the all-time 16mm *quiet* champ!

Fully up to Hollywood professional standards, our soundstage-silent CP-16R has already established itself as the outstanding all-around 16mm *production camera* — quietly setting a new standard for 16mm silent operation, outclassing 16mm production cameras that cost many thousands of dollars more.

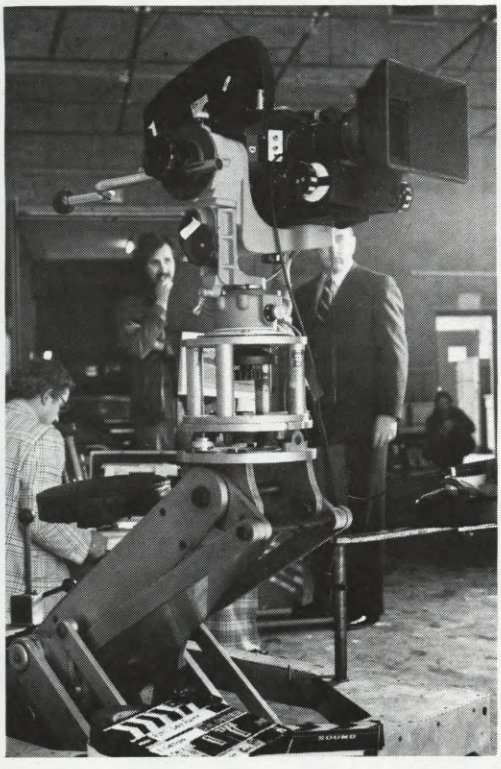
The super-silent, rugged and versatile CP-16R is ideal for filming 16mm feature productions, theatrical documentaries, industrial/scientific films, as well as television specials and commercials.

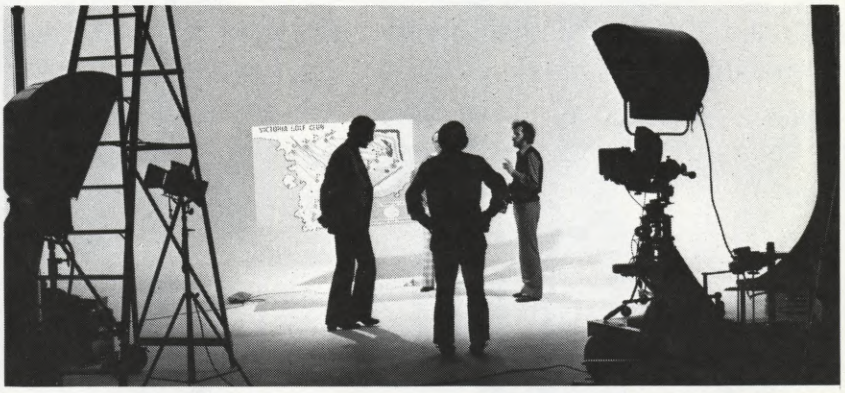
Precision engineered and manufactured under the strictest quality controls, *all* CP-16R reflex cameras leaving the factory are rated at 30dB max. And, if equipped with Studio Rig, at 28dB max!

But don't just take our word for it. Judge for yourself.

Before embarking on your next 16mm studio-type production, run some sound tests and compare our CP-16R with its famed European rivals: the Arri 16SR, the Eclair NPR, etc.

You'll find that, *with or without Studio Rig,* our CP-16R "out-silences" them all!





Canadian cinematographer David M. Ostriker (at right) shooting a television commercial with his own CP-16R and Studio Rig.
Equipped with Studio Rig, the CP-16R is rated at 28dB max. when measured on the weighted "A" scale at 3 feet from the optical flat in the matte box.
The optional J-4 zoom control motor is coupled to the lens through a belt drive system for maximum sound isolation.

Our CP-16R (with Studio Rig) checks in at a remarkable 28 dB max.

The CP-16R with Studio Rig on a soundstage in Vienna, during the filming of a musical comedy feature for television.
Television features and specials in Austria, West Germany, and indeed all over Europe, are shot in 16mm, and the CP-16R is rapidly becoming the preferred camera (even in the heart of "Arriland") for filming such productions because of its outstanding quiet operation.

For further information, please write to:

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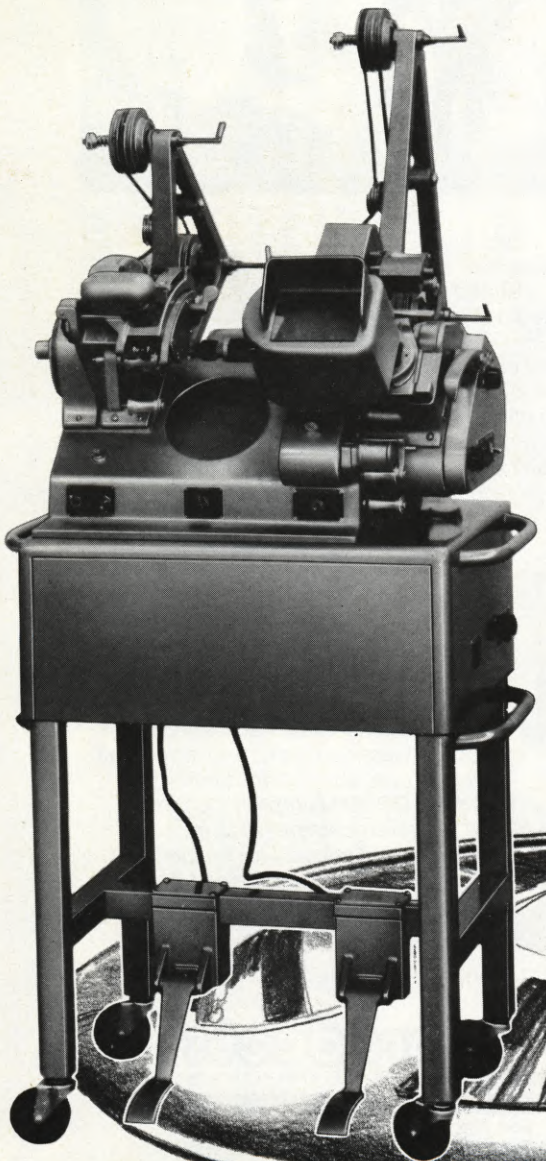
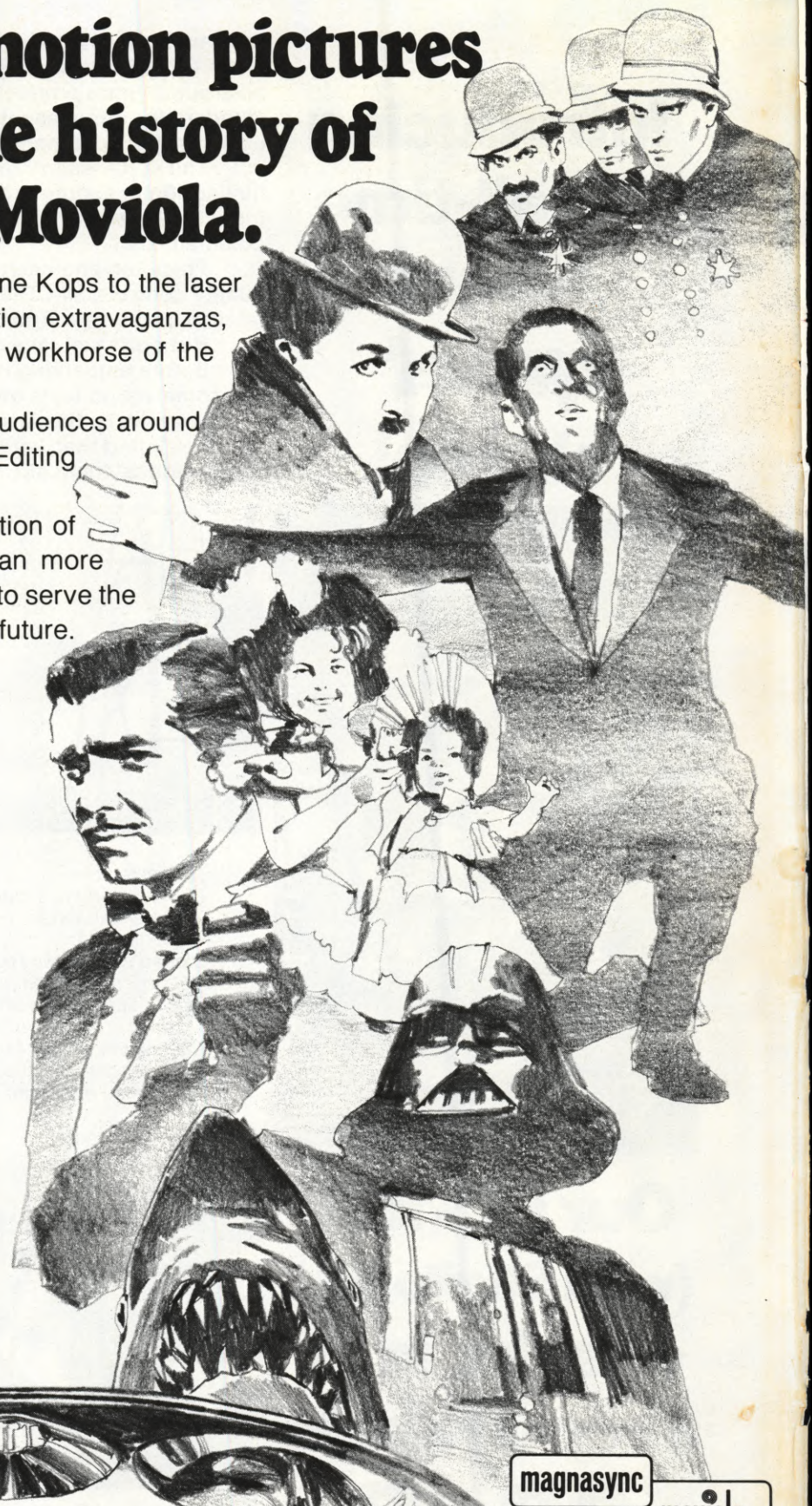
From the flickering images of the Keystone Kops to the laser lights of the most sophisticated science-fiction extravaganzas, the "Moviola" upright editor has been the workhorse of the motion picture industry.

Virtually every foot of film projected to audiences around the world has been cut on a Moviola Editing machine.

The Series 20 Editor carries on the tradition of quality, reliability and integrity which began more than half a century ago. And it will continue to serve the editing needs of the industry far into the future.





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HMI/TUNGSTEN UNIVERSAL TYPE FRESNEL SPOT LIGHT SERIES

Ryudensha of Tokyo presents a new series of ingenious "cube" configuration lights that stack neatly for transport or storage and can be quickly changed from HMI to tungsten, or vice versa

At *PHOTOKINA '78* almost all of the major manufacturers of motion picture lighting equipment displayed lines of HMI units. With only one or two exceptions, these luminaires utilize the same Osram HMI lamps, which are extremely efficient in terms of lumens-per-watt output of daylight color temperature illumination.

However, whereas most of these manufacturers have basically adapted their existing tungsten-luminaires to accept the new metal-halide lamps, Ryudensha Co. Ltd., the major lighting equipment manufacturing company in Japan, has seized the opportunity to generate an entirely new design, which, they maintain, incorporates the most advanced technology and human engineering elements. This new design is exemplified in their unique line of luminaires designated as "HMI/Tungsten Universal Type Fresnel Spot Light Series". The series presently consists of four units, including: 575-watt, 1,200-watt, 2,500-watt and 4,000-watt.

Because HMI lighting equipment can be used most effectively on location, Ryudensha has designed its new units primarily to solve the problems inherent in location shooting. All of the units are extremely simple in design and are square in shape, so that they can be stacked conveniently for transport or storage on location. Furthermore, all of the standard accessories are protected by the distinctive rectangular framework, thereby avoiding damage to barndoors, scrims, etc., during handling.

Taking into consideration the fact that location filming is extremely hard on equipment, Ryudensha has fashioned the framework of strong but lightweight aluminum extrusions, so that total weight is reduced without sacrificing sturdiness.

In terms of both structural and electrical design, all possible safety features have been included. An automatically functioning safety switch cuts the power when the insert unit is removed. The power cable attaches to the housing with

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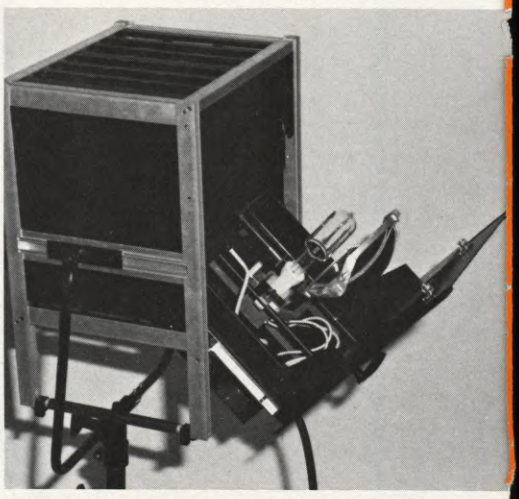
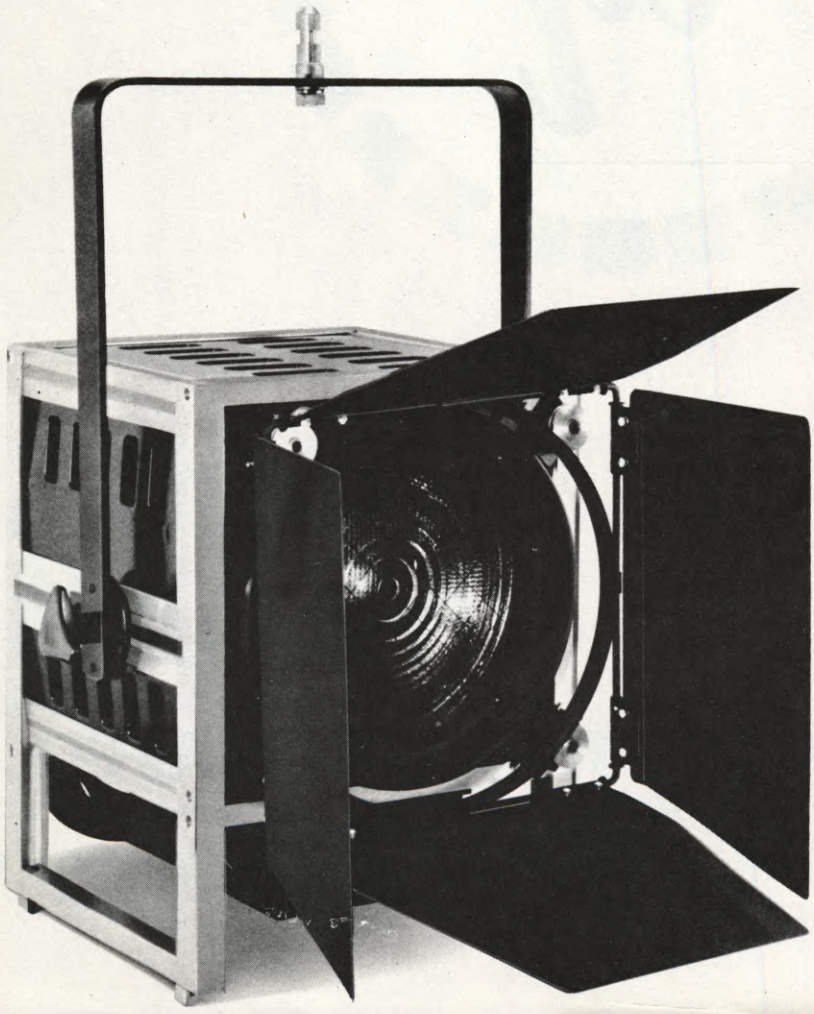
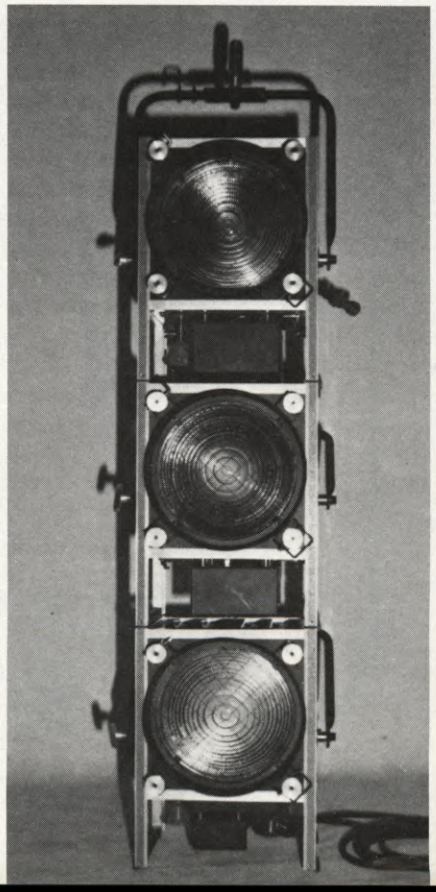


The entire firing mechanism is removable without the use of tools for maintenance or quick change of inserts in the field.

The 1,200-watt HMI/Tungsten Universal Type Fresnel Spot Light, one of a series of four new luminaires ranging from 575 watts to 4,000 watts (HMI), with quick conversion capability to tungsten (1KW to 10KW). Making their debut at *PHOTOKINA '78*, the new lights have frameworks of aluminum extrusion, combining light weight with strength.



"Plug-in" legs and one-touch spring clamps allow the units to be stacked vertically for transport or storage.



kobold

A new name in HMI lighting

Available Now from Cinemobile.

That's right. Cinemobile Systems, Inc., the people that have been setting industry standards for years in location equipment are now offering a complete line of Kobold HMI lighting equipment for rental and *sale*.

Why Kobold?

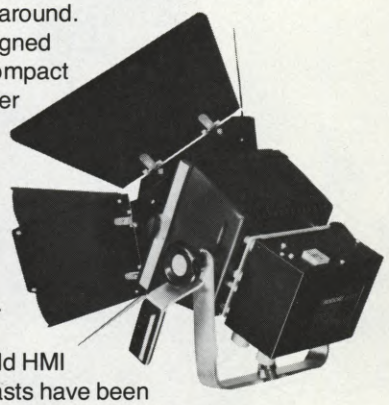
Although the name might be new to you, it is not to us. Cinemobile vehicles have been carrying Kobold HMI lights since 1976. We've had Kobold HMI lights in every imaginable rental situation, subjected them to rugged daily use on features, television shoots and commercials. *Kobold has not let us down.*

Kobold HMI lights have been constantly improved as new technology becomes available. They're strong and dependable with features that will not limit their application. Kobold lights are very efficient, producing between 85 and 96 lumens per watt of daylight (5600 degrees Kelvin). Kobold HMI lights produce more light than conventional units drawing four times as much power, and they produce a lot less heat.

Cinemobile was offered exclusive distribution on other HMI lights. We chose *Kobold*.

An HMI Is an HMI. Right?

Wrong. Most HMI's on the market seem based upon old technology with large bulky cylindrical heads, wasted space, extra weight for you to lug around.



Kobold lights are designed specifically for the more compact HMI globe. They are smaller than other HMI's, lighter in weight, therefore, easier to transport and place. And, after all, our name is *Cinemobile*. Mobility is of prime concern.

Furthermore, all Kobold HMI lights and ballasts have been tested and approved by OSRAM, the people that manufacture all HMI globes.

Any Innovations?

Yes. Kobold makes the only portable 200 watt HMI on the market. It's battery powered and completely *flicker free* — at any frame speed.

The 200 watt Kobold features a unique square wave ballast, an LED readout that displays battery status at a glance, and produces an equivalent of 1000 watts of filtered quartz light. The entire 200 watt system weighs only 26½ lbs.; you can take it and use it *anywhere*.

Want More Information?

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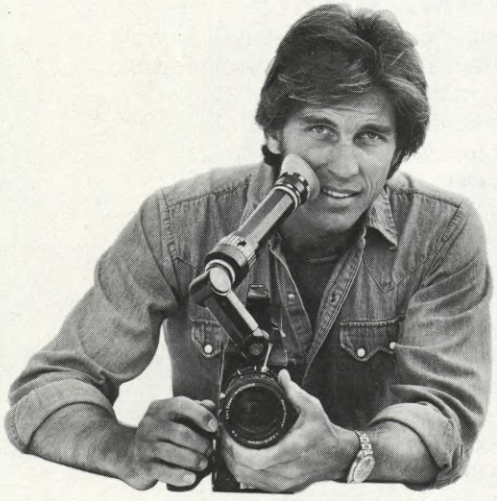
Kobold portable 200 watt HMI

The Arriflex 16SR's helpful viewfinder:

They pay you to *see*.
Here's an instrument that actively helps you to do that.



Whatever position you bend its finder to, the 16SR's image is always upright and correct left-to-right.

Three-way rotation

The finder swings over from one side of the camera to the other—190°. It also rotates 360° parallel to the camera's side. And it swivels 25° *out* from the camera's side.

Key to versatility: symmetrical design

On most reflex camera designs, the mirror/shutter is mounted to the right of the aperture and the finder to the left. On the 16SR, the mirror/shutter is below the aperture and the finder is above.

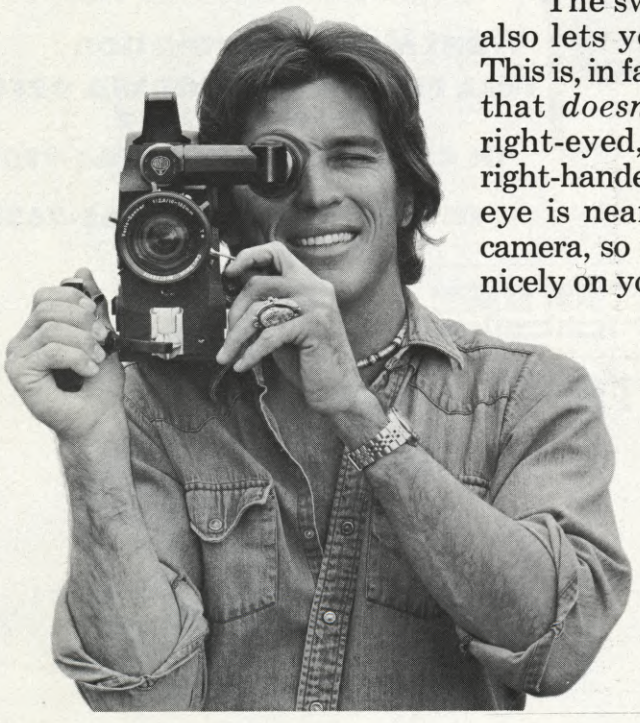
Ambidextrous

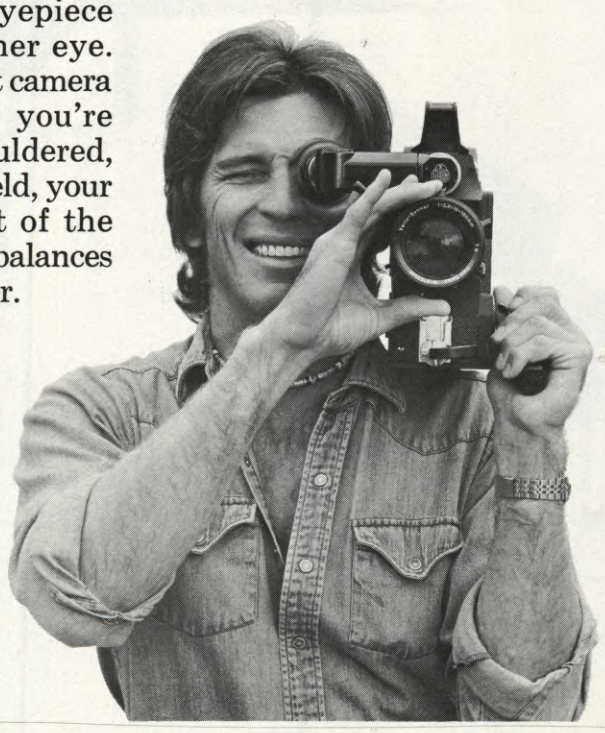
So the primary optical path is vertical, instead of horizontal. It doesn't favor the left side; it doesn't favor the right. And it's equally happy pointing straight up—or any angle in between.

Adaptable

The swivel-out eyepiece also lets you use either eye. This is, in fact, the first camera that *doesn't* assume you're right-eyed, right-shouldered, right-handed. Hand held, your eye is near the front of the camera, so its weight balances nicely on your shoulder.

The seven-inch finder extension makes high angles easier. So does the shutter, which always stops open to the 16SR's viewfinder.





Steal candid shots by looking the other way.

Fiber focus screen

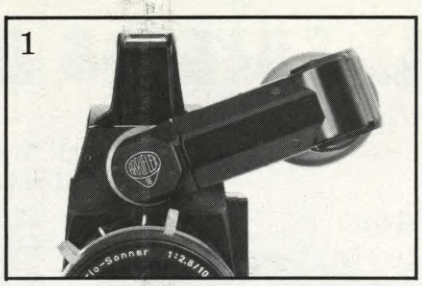
Compared with a groundglass, the 16SR's fiber screen transmits more light. Viewing is easier at low light levels. Edge-to-edge brightness is more even, too. And there's much less light scatter, and no groundglass grain. So image contrast is better and it's easier to see when you're stopped down.

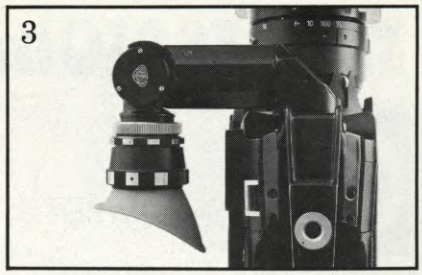
Superspeed optics

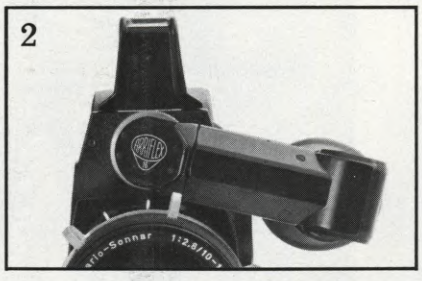
To match the latest fast emulsions and fast lenses, the entire viewfinder system is a new, large-aperture design. The Zeiss lens transmits T1.3 to the film and the Arriflex finder transmits it to your eye.

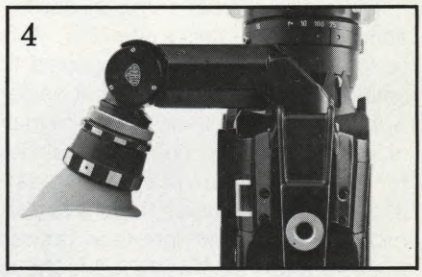
Big, bright image

Moreover, the eyepiece image is magnified twelve times. All in all, the 16SR has the brightest and the sharpest viewfinder image available in 16mm. *Helpful.*



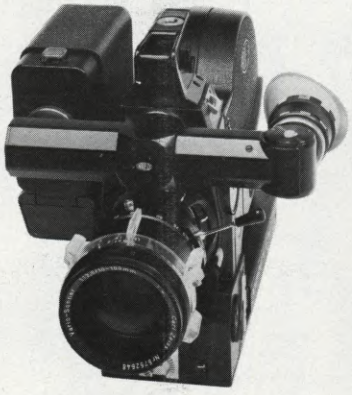






Custom fit

With the 16SR resting on your shoulder, you can adjust the height of the eyepiece (photos 1 and 2); and you can move it away from the camera's side (either side), to suit either eye (photos 3 and 4).

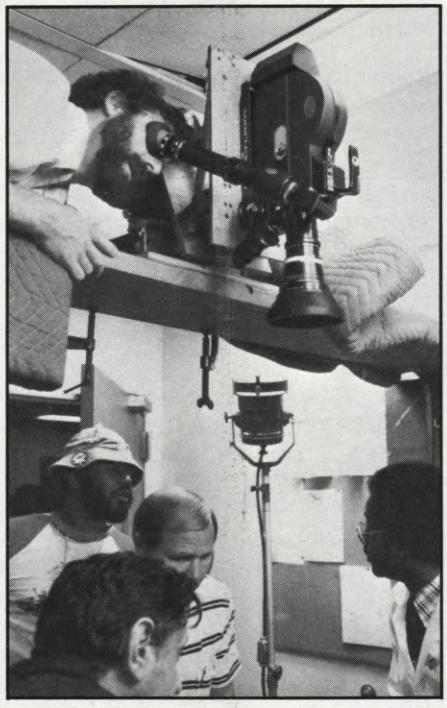


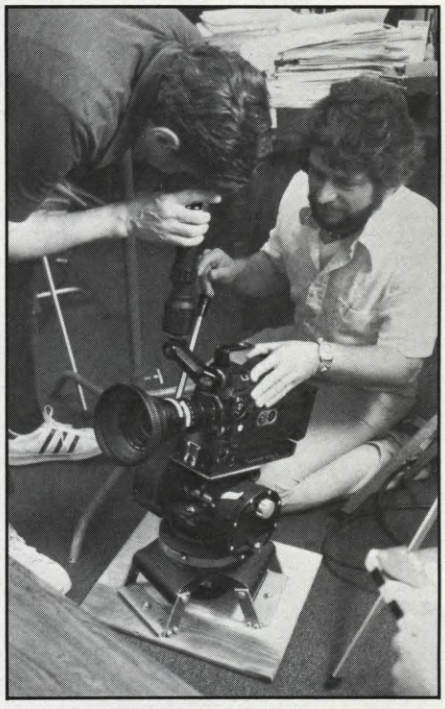
Video monitor

In the photo at left, you can see the Video Adapter mounted on the 16SR's right side. It's easy to attach. On the left side, you view the reflex image normally. The video pickup runs on 12VDC and 110VAC; and it works with most standard remote TV monitors or videotape recorders.

Faster setups

Wherever you put the camera, you can quickly see the shot — and so can the director.





16SR at work: left: Jack Cooperman; right: Jack Green. Photographs by Ron Grover.

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PROFESSIONAL SUPER-8 AT PHOTOKINA '78

By GUNTHER G. HOOS

Seemingly no end to the sophistication and electronic ingenuity embodied in these new cameras, recorders, projectors and editing devices—and all of it packed into superbly miniaturized units

There was a great sense of optimism about Super-8 at this Photokina. Manufacturers seem to have recognized that small format video would not replace Super-8 film in the near future and that in fact the filmmaking public was anxious for new and sophisticated Super-8 filmmaking equipment. There was also a recognition that an interface between Super-8 and Video would be to the advantage of both media.

Some excellent new products were shown. The following summary is by no means complete, but it does represent the best equipment offered by the major manufacturers.

BRAUN/NIZO

Braun/Nizo did not introduce a 200-foot camera. Instead they chose to refine the 1048 and 2056 models (now making their appearance as the new black 3048 and 3056) and introduce two new high-quality 50-foot sound cameras: The 4056 and 4080.

The main features of the 4080 include: Schneider Macro-Variogon f/1.4, 7-80mm lens; 200° shutter; two-speed power zoom (also manual); new silicon TTL exposure control: ± 1 f-stop overall auto exposure adjustment; backlight control; fading of sound, picture or both; automatic dissolve with both silent and sound cartridge; manual aperture control; filming speeds with ilent or sound cartridge of 9, 16⅔, 18, 24, 25, and 54 fps; automatic single-frame control; PC socket for double-system sound; telescopic uni-directional microphone is standard; frequency response at 24 fps is 80Hz to 20KHz ± 3 dB; three-stage automatic recording level control as well as manual adjustment, power supply is a rechargeable Nickel Cadmium battery with charger; weight is approximately 4 lbs. (1840g).

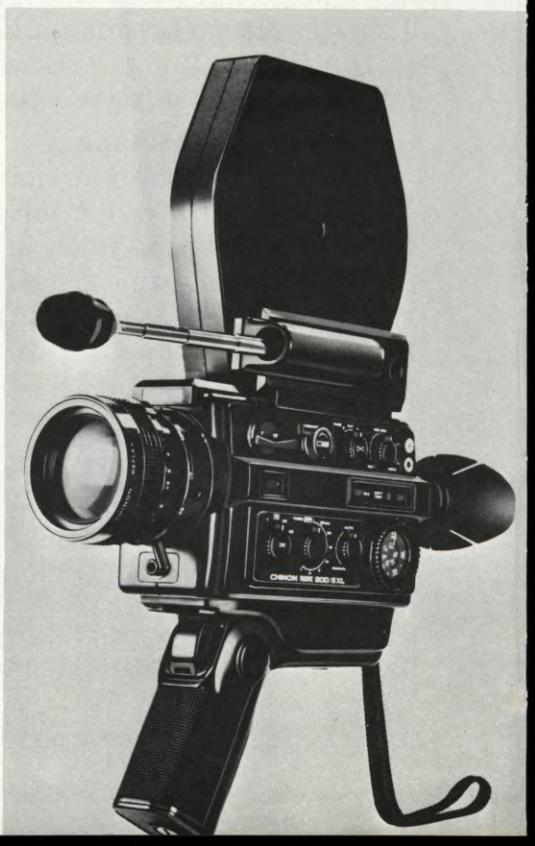
The new Braun/Nizo 4080 Super-8 sound camera features a Schneider Macro-Varogon f/1.4, 7-80mm lens, 200° shutter, two-speed power zoom, new silicon TTL exposure control, and fading of sound, picture or both. (BELOW RIGHT) The Chinon Pacific 200/8XL camera has a 200-foot capacity, lap dissolve facility for picture and sound and an f/1.4, 7-56mm macrofocusing lens.

The principal difference between the 4080 and 4056 is the lens. The 4056 features the Schneider Macro-Variogon f/1.4, 7-56mm lens. The 4056 and 4080 Braun/Nizo cameras will not be available in the U.S. until spring of 1979.

ULTRAWIDE LENS TYPE NIZO III:

This wide angle attachment designed for the Nizo 4080, Nizo 801 Macro and Nizo Professional offers an approximately 80 degree distortion-free angle of view, sharpness from the vertex of the lens and a focal length shortened to 4mm. The normal minimum focal length on the above cameras is 7mm

The Cosina 206 Macro camera features an f/1.8, 7.5-45mm lens, 220° XL shutter, automatic and manual recording level, detachable microphone.



without the adapter lens.

TUBULAR DIRECTIONAL MICROPHONE FOR NIZO CAMERAS:

This new uni-directional microphone (standard equipment on the 4080 and 4056) can also be used with all other models of Nizo sound cameras. It is an electret capacitor microphone designed into a shock mount. It can be hand-held, mounted to the top of the camera or attached to the handgrip. It has a frequency response of 20 to 20,000Hz and an impedance of 600 ohms at 1000Hz.

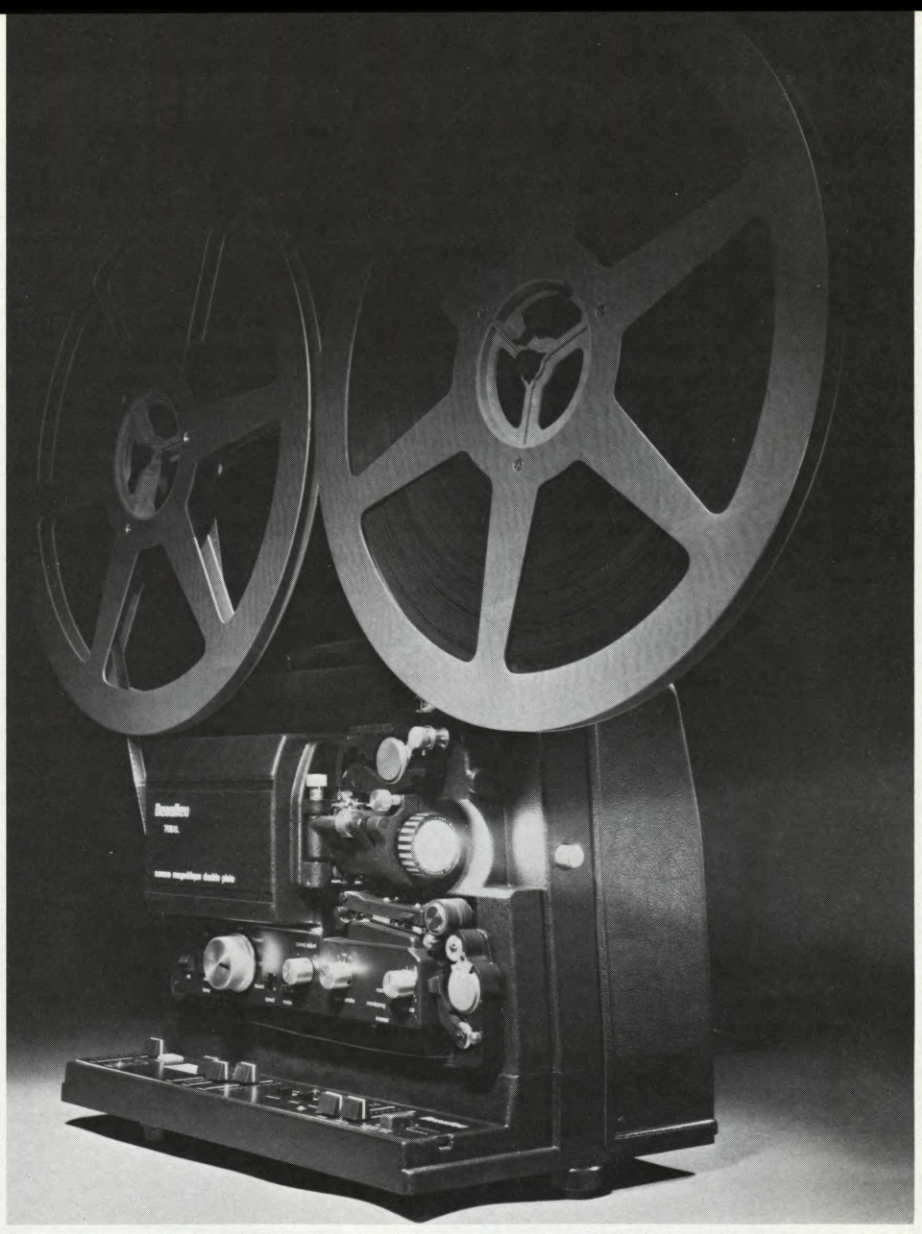
BEAULIEU

The only new item at the Beaulieu booth was a Xenon light theatre version of the 708EL projector. Photokina was the formal introduction to the European market of the 1008XL camera and the 708EL projector.

Beaulieu 1008XL: This camera is Beaulieu's effort to get a share of the Super-8 mass market. Though manufactured for Beaulieu in Japan by Bell & Howell, the camera was fully designed by Cinema Beaulieu in France. Major features include: f/1.2, 7-45mm macro lens; automatic and manual exposure control; excellent dichroic focusing system; automatic two-step recording level control; filming speeds of 9, 18, 24, 36 fps plus single frame; sound and picture fades; monitoring; excellent handgrip and (if you can believe it) a magnetic shutter release; 1/f sync socket for double-system filming; very quiet running; weight is just under 4 lbs. or 1.775 kg.

708EL Projector: Without a doubt, this is the finest Super-8 projector on the market (also the costliest with a U.S. list price of $1750).

Specifications include: Multicoated Schneider f/1.1 11-30mm Xenovaron lens; 15V/150W halogen dichroic projection lamp; 18 and 24 fps running speed, with speed adjustment control; double pulldown claw and a unique pressure plate system that always keeps film focused regardless of thickness; manual film removal; dual-track sound; intertrack transfers; sound-on-sound; true monitoring with a three-headed sound system; manual and automatic recording level control; frequency response at 24 fps is 50-12,000Hz with 48dB Signal to Noise ratio and less than 0.2% wow and flutter; sync output for double-system interlock projection and transfer; reel capacity is 2400 feet or 700m.



Considered by the author to be the finest Super-8 sound projector on the market, the Beaulieu 708EL Projector has a unique pressure plate system that always keeps film focused, regardless of thickness; dual-track sound; intertrack transfers; sync output for double-system interlock projection and transfer; and a reel capacity of 2,400 feet (or 700m).

SUPER8 SOUND:

Super8 Sound Cassette Recorder I: The introduction of this low-cost ($225 U.S.) crystal and cable sync cassette recorder is the beginning of a program to radically lower the cost of double-system sound using cable-less crystal sync. This recorder will function with all Super-8 cameras having an electronic (1/F) flash socket and with all crystal controlled cameras. Primary features include: Automatic or manual recording level control; record level limiter; variable speed control; pause control; high speed cue and review; VU meter; built in AC adapter. With crystal sync, accuracy is ±1 frame per 13 minutes continuous running. The recorder is in production and available.

XSDIV Crystal Sync Cassette Recorder: The XSDIV sync recorder is a Sony TC-D5 stereo cassette recorder with Dolby, modified to include a built-in 60Hz pilotone quartz crystal oscillator. It can record sound in sync with any Super-8, 16mm or 35mm camera that is crystal-controlled or has a standard pilotone sync output. In sync use, it is monophonic with sync on the right channel. It reverts to a stereo cassette recorder in non-sync use. In addition to

Continued on Page 1218

The Chinon Sound SS 1200 Projector is a true stereo projector, with sound-on-sound recording facility and track-to-track sound transfer.

Our stars come out at night.

If you've found yourself wishing upon a star for a place that works around the clock, put your dreams away.
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Our stars work around the clock. They're a professional bunch of people who deliver quality work . . . regardless of the time.
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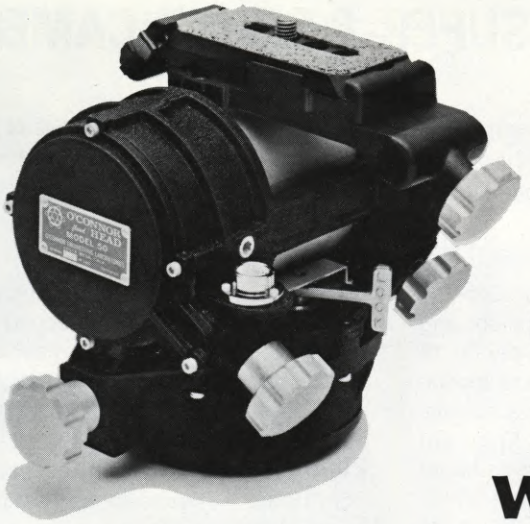


VERSATILE.

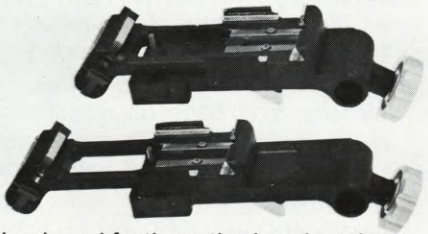
O'Connor Model-50. A fluid head with 378 combinations.

NEW, ADJUSTABLE BALANCE, QUICK RELEASE PLATFORM.

The Model 50-D Fluid Head can be ordered with one of six different platforms. Each has its special features and purposes, but our newest is the ultimate.

First, it has a unique camera mounting plate which can be attached to your camera in one of eight different positions. This is used to balance your camera on the head, greatly improving the head's performance.

Besides an adjustable camera mounting plate, the entire platform (with camera atop) can be shifted

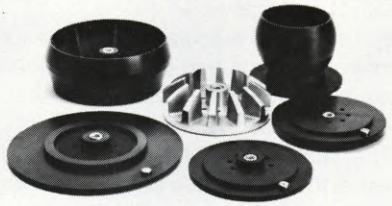


back and forth on the head so that you can find the precise center of gravity for whatever particular gear you're using at any given moment, such as heavy lenses, large magazines, etc.

It takes only a second to release your entire camera with O'Connor's new quick release option. To prevent accidental releases, it has a built-in safety feature.

WITH BASES, WE'RE LOADED.

The Model 50 can be ordered with one of six bases. Besides two Pro Jr. types, Mitchell, Arri 16 and Arri 35, we also offer the O'Connor Claw Ball Base with the "ultra positive grip." The distinctive aluminum ridges



dramatically increase the holding power with far less effort needed to secure it in position. This Claw Ball design can also be adjusted ±15° to the horizontal plane within the top casting of the tripod to correct or alter your panning plane.

O'CONNOR COUNTERBALANCE DEFIES GRAVITY.

Three counterbalance spring options are available for the Model 50. It is important that you use the proper method to determine which spring is correct for your needs. If you're not sure, consult an O'Connor dealer or talk to us direct.

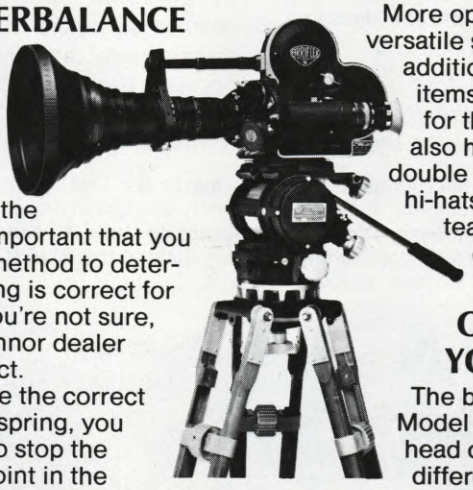
When you have the correct counterbalance spring, you should be able to stop the camera at any point in the normal tilting range and release the handle without the camera moving. And it should take no more effort to tilt it upward than it does to tilt it downward. We specifically design counterbalance into all our heads to correct this natural act of gravity so that your "tilts" are as steady as your "pans."

MORE CONTROLS FOR MORE CONTROL.

Like all O'Connor heads, the Model 50 is designed to provide maximum versatility. Separate controls for the pan drag, pan lock, tilt drag lock—all improve the flexibility and repeatability of camera movement.

O'CONNOR HAS MORE OPTIONS.

More options mean a more versatile system for you. In addition to some of the items already mentioned for the Model 50, we also have adjustable double video handles, hi-hats, cases, adapters, teak tripods and the ever amazing Hydro-ped.



ORDER IT YOUR WAY.

The basic O'Connor Model 50 fluid camera head can be ordered 378 different ways. If you're not sure how you want yours, maybe you should send for our brochure and price list to help you pick the equipment that's perfect for your needs.

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BAUER S 715 XL MICROCOMPUTER SUPER-8 SOUND CAMERA

With its comprehensive electronics and first-ever application of a microcomputer, the S 715 XL offers such a wide range of features and creative possibilities that it is definitely in a class by itself

Very likely the most sophisticated Super-8 camera on the market, the Bauer S 715 XL microcomputer blazes the trail ahead in design and technology. Superbly functional styling by Winner of the Federal Prize for Design, Hans E. Slany. With its comprehensive electronics and first-ever application of a microcomputer, the S 715 XL offers such a wide scope of refined equipment features and many-sided creative possibilities coupled with such ease of operation, that a special position is assured for this top camera.

The show-piece of the Bauer camera is the Angénieux Zoom-Macro lens with its superb 15-to-1 zoom range of 6mm-90mm (multi-coated). The Super Panorama 6mm wide-angle lens with a speed of f/1.4 represents a top technical achievement.

The range of use of this lens is illustrated by the following comparison: The 6mm wide-angle of the Angénieux lens corresponds to a reflex camera zoom lens of only 38mm. And, incredible though it sounds, the 90mm Tele corresponds to a zoom lens of 563mm!

Computer technology makes filming simpler and surer

In the Bauer S 725 XL for the first time a microcomputer controls all the important functions for silent and sound filming. And that with absolute reliability:

- The frame frequencies with silent and sound cassettes are optionally 9, 18 and 24 f.p.s. An automatic slow motion control with 40 f.p.s. and an automatic interval timer for 240 to 1 f.p.s. are incorporated, just as is a single frame facility.
- Trick titles or cartoons can be made with the automatic titling control which, depending on the planned sequence of the motions, permits exposure of either 1, 2, 3 or 4 frames at a time.
- By using the automatic scene length control, the duration of the film scene can be limited before starting to shoot: 6, 8 or 10 seconds.
- The masterstroke: If the built-in self-actuating release is combined with the automatic scene length control, then the computer takes care of a fully automatic start with a pre-programmable end to a scene.
- A lot of good cameras have two motors. The Bauer S 715 XL has four, with four different functions.

Motor No. 1 allows the focal length to be adjusted or the framing to be determined before shooting. After the camera starts, motor No. 2 (servo-motor) presses the film against the wound driving spindle so that motor No. 3 (capstan motor) brings the driving spindle complete with flywheel up to the necessary speed a split second later. Motor No. 4 (framing motor) receives the signal to start transporting the film. In this way, distortion-free audio start-ups are possible.

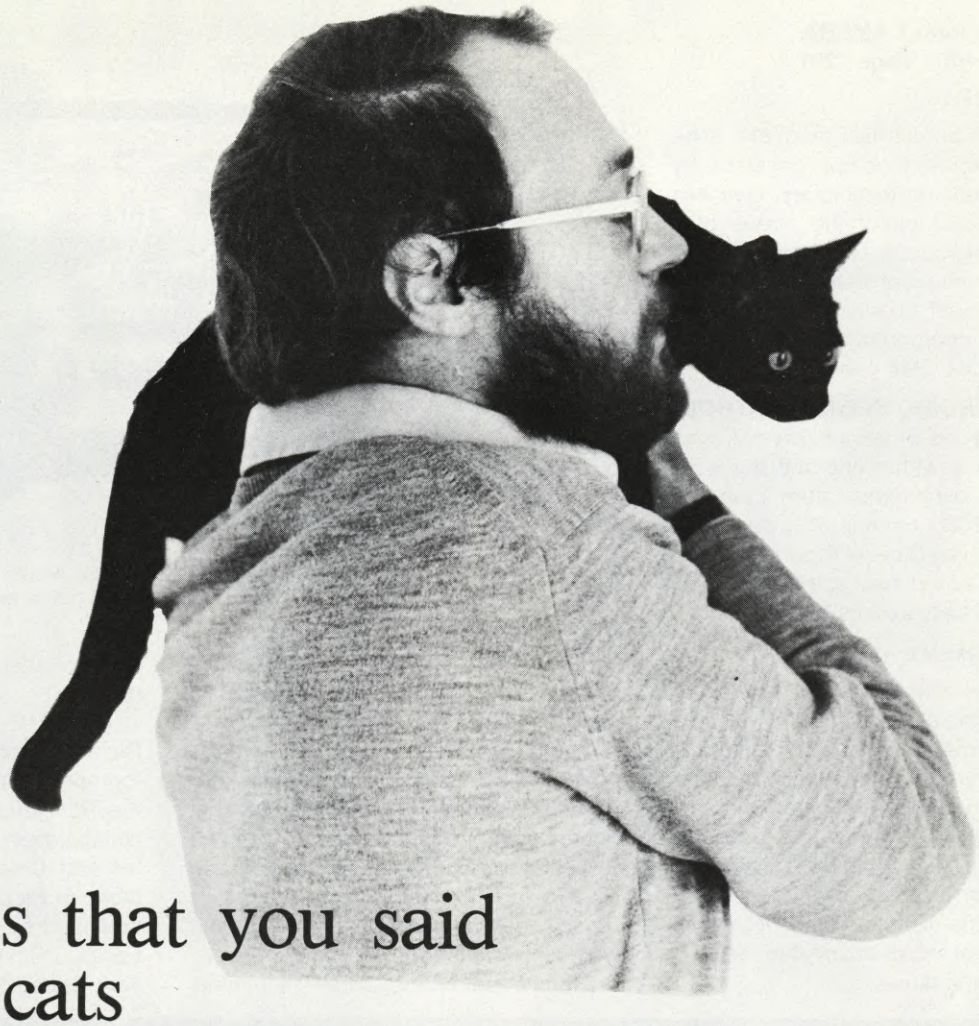
- For perfect film composition the S 715 XL possesses an automatic control for fading in, out and over, using both silent and sound film cassettes.
- The sound recording level is fully automatically regulated on all BAUER sound cameras. Optionally with maximum recording level or reduced sound intensity.
- On the Bauer S 715 XL the input sensitivity of the automatic recording level control can, in addition, be infinitely varied, so that the operating point of the automatic control can be set at any arbitrary level.
- In special cases, e.g. when there are long pauses between passages of sound, the manual recording level control on the S 715 XL is a great advantage. The indicator scale shows you the exact degree of modulation and if the recording is over-modulated.
- It goes almost without saying that, just the same as all Bauer sound cameras, the film sound can be checked before and during filming. In fact, both audibly through headphones or visually in the viewfinder.
- The phono adapter provided is of special interest to the proponents of the playback technique. By using this item, a record player or tape recorder can be connected up to the S 715 XL allowing, for example, an appropriate song to be cross-recorded whilst filming. At the same time the camera operator can mime before the camera as the (dumb) singer and later enjoy being celebrated as a pop-star!

In its details, too, the Bauer S 715 XL offers a series of special features which make filming easier:

- Adjustable viewfinder eyepiece with diopter indicator (when several people film, each can easily note his or her own value).
- Choice of three different eyepiece cups for individual fitting. Each eyepiece cup can be rotated and can be set for use with the right or left eye.
- Variably adjustable brown rest for

Continued on Page 1232

The new Bauer S715XL Microcomputer camera marks the first application of the microcomputer to a Super-8 camera. It features a newly designed Angenieux f/1.4, 6-90mm multi-coated macro-zoom lens. The microcomputer controls a vaste range of sophisticated functions for both silent and sound filming, making the S715XL quite probably the most advanced Super-8 camera on the market.



Q : What's that you said about cats and the Aäton ?

A : Cats catch mice, Aätons don't.

Q : Then what are these two pictures for ?

A : To show what cats and Aätons have in common : both comfortable to hold, and very quiet.

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THE EMP 16mm CAMERA
Continued from Page 1207

THE MOTOR

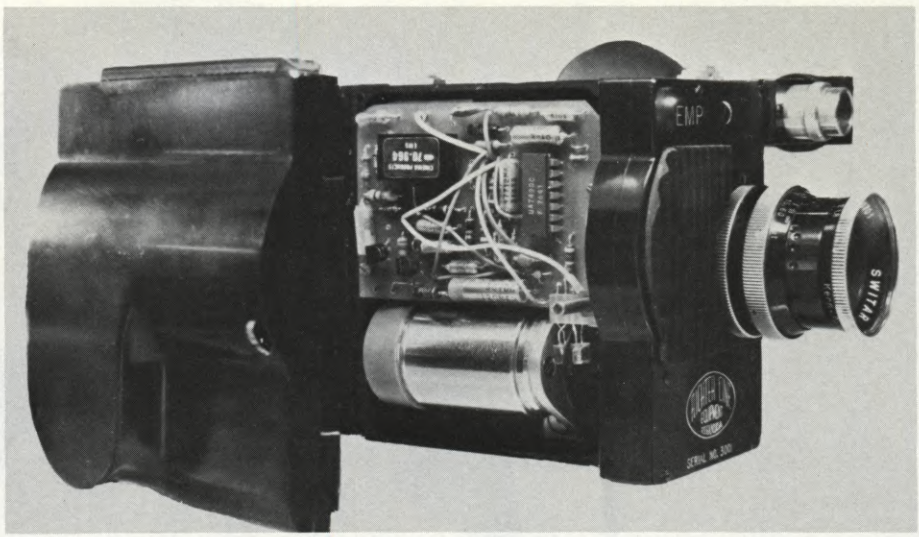
Samarium-cobalt field magnets, a recent development made possible by Japanese refining techniques, give this precision Swiss motor the torque of a conventional motor of twice the diameter. Although much more costly than an ordinary instrument quality motor, this extraordinary component helped reduce the size of the EMP camera.

THE ELECTRONIC SPEED CONTROL

Speed 24 fps or 25 fps, crystal sync with accuracy within one-half frame in 120 meters over temperature range of −18°C to +60°C. Synchronous drive system uses proven Cinema Products hybrid I.C. Circuit board has quick exchange feature and easy access test points.

THE MOVEMENT

Simple, reliable, quiet claw on helical gear gives same image stability as conventional cameras using same pulldown system. Movement and aperture plate are in camera head, so the frameline remains stable, not subject to possible variations in film chamber. Monobloc construction enables precision component alignment independent of camera housing. Gear mesh adjustable for lowest torque and noise.



Cutaway showing crystal-sync unit and Swiss motor which has the torque of a conventional motor of twice the diameter. This component helps reduce the size of the EMP.

OTHER EMP FEATURES

Lens mount accepts C mounts or lenses adapted to C mount. Lens seat is user-adjustable so variations up to 0.2 mm of lens back focus can be compensated without having to dismantle the lens. This unusual feature permits the highest standard of image sharpness to be achieved. The aperture plate is adjustable vertically for frame line zeroing. These two parts can be exchanged easily for an offcenter ring and a cutout aperture plate, permitting Super-16 filming with no other changes except the finder mask.

The EMP was designed by Kenneth Richter, internationally known cinematographer, film producer and designer of the R2 Reflex Autocollimator, with the collaboration of engineers Raymond Miller and Charles Dolson. The EMP is made in Richter Cine Equipment's well-equipped small factory in the village of Essex, in the northeast corner of New York State. Zip code: 12936. ■

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FIVE NEW LIGHTS FROM QUARTZCOLOR IANIRO

Continued from Page 1179

results are with a 650-watt, 120-volt lamp. The bulbs are the 2-pin prefocus base, compact filament tungsten-halogen types ranging from 420 to 650 watts at 120 volts; 650 watts at 220 or 240 volts or 250 watts at 30 volts for battery-pack operation.

With 11.7 ft (3.5 m) of cable, the basic PULSAR weighs just 3 pounds (1.5 kg). The following accessories are available: Daylight Filter; scrims; barndoors; outrigger frame for color media or diffusion; handle.

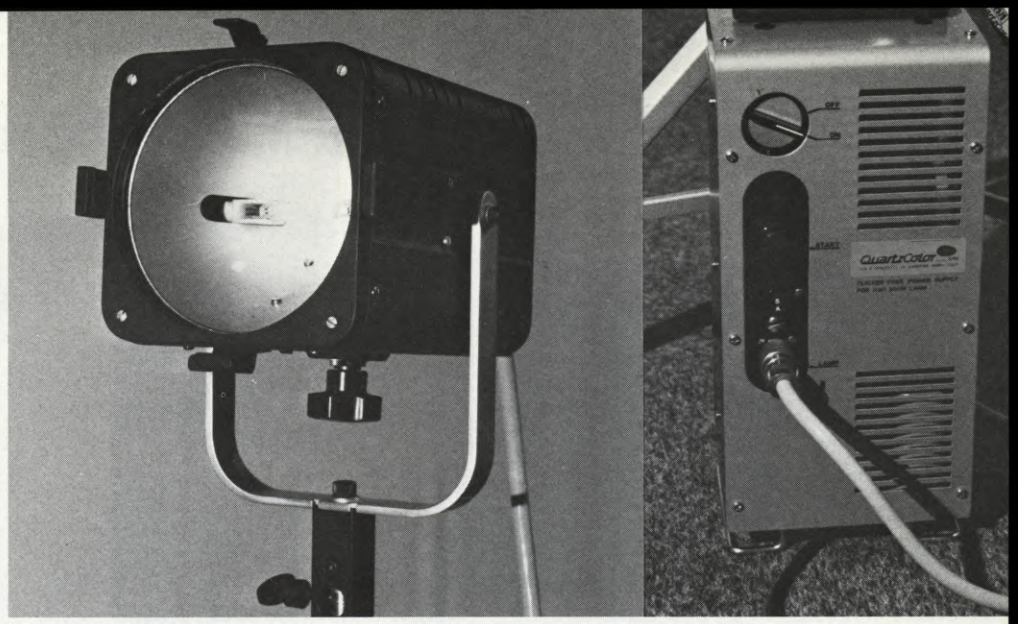
SIRIO 1 KW Tin-Halide Spotlight

This is the first spotlight design in the world to utilize the newly introduced tin-halide lamp introduced by Philips at *PHOTOKINA '78.*

The tin-halide lamp is an A.C.-operated arc lamp and is a "daylight" type source. At present it is not possible to hot restrike the lamp, but further development should produce this result.

The extremely compact source allows the very excellent spot/flood ratio of 10:1 on the SIRIO.

Quartzcolor Ianiro feels that this will be practical for introduction to the market within the year, and with this time frame in mind, has begun the applications work toward utilization of this new source.

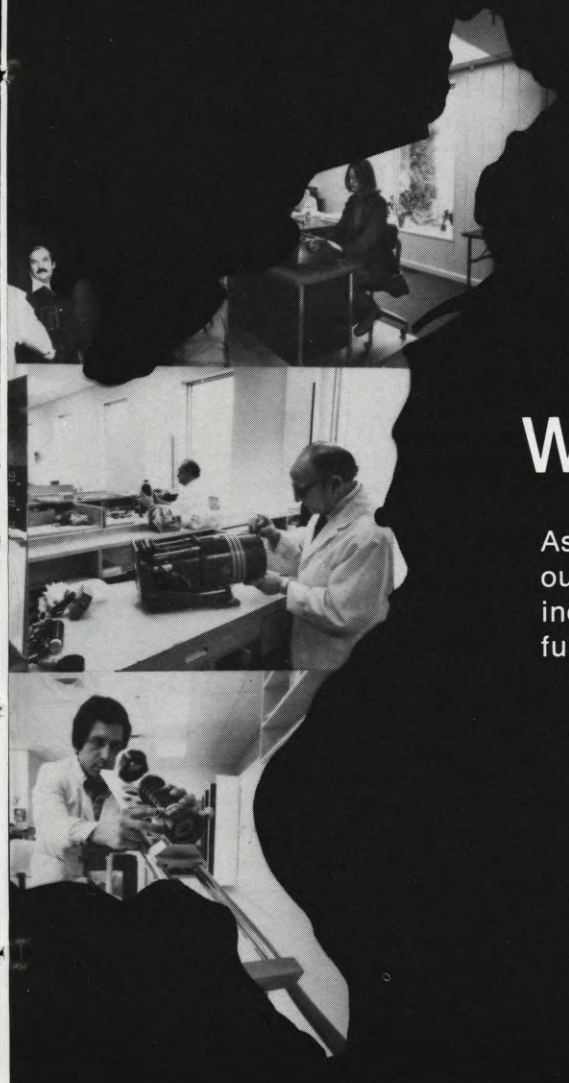


(LEFT) The RIGEL 200-watt HMI Floodlight is a new rugged, compact, lightweight open reflector floodlight which remains relatively cool after extended operation and can be utilized on a stand or hand-held. (RIGHT) The "flicker-free" ballast for the RIGEL operates from 120-volt, 60Hz line or generator (AC only).

Model 3420 BROAD

This new compact fixed-focus floodlight can utilize either the 1000-watt FFT or 1500-watt FDB tungsten-halogen lamps. With the 1500-watt lamp installed, it produces 80 footcandles center intensity at 15 feet, with a beam coverage (coverage to 50% of the center intensity) of 85° x 60°. It may be applied instead of a scoop or softlight in many situations, particularly with the outrigger accessory fitted, which permits the use of standard diffusion materials to soften the lighting effects.

In addition to the outrigger, for diffusion or color media, barndoors are also available as an accessory. With 11.7 feet of cable (3.5 m), the unit weighs only 6 pounds (2.8 kg). ■



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THE EMP (ENVELOPE: MINIMUM POSSIBLE) 16mm CAMERA

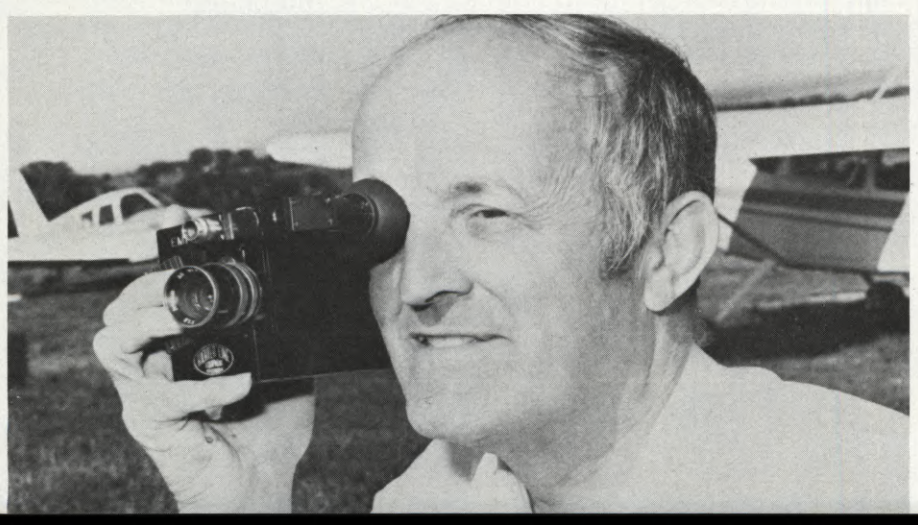
The EMP, the smallest and lightest professional 16mm crystal-sync camera in the world, is part of a complete sound and camera system that is intended to introduce a whole new approach to filmmaking

At *PHOTOKINA '76* noted cameraman/lecturer/engineer/inventor Kenneth Richter quietly "sneak previewed" the prototype of a tiny 16mm sync-sound camera (then designated MPE for "Minimum Possible Envelope") which he described (with little fear of contradiction) as "the world's smallest and lightest crystal sync professional cine camera."

Although *American Cinematographer* emphasized in its reportage of the item that the model shown was only a prototype and that extensive modifications were yet to come, Mr. Richter was deluged with inquiries from all over the world.

At the recent *PHOTOKINA '78* the approved production model was displayed with its designation changed to EMP for "Envelope: Minimum Possible" (to avoid confusion with another product designation, we were told). It had, indeed, been extensively upgraded in sophistication, and what follows is the manufacturer's description of the finished product:

Although it appears somewhat massive in this exaggerated perspective photograph, the EMP is actually only slightly larger than a Nikon 35mm still camera and smaller than most Super-8 cameras, rendering filmmaking a far less conspicuous activity. (BELOW) Kenneth Richter, inventor of the EMP, operates his creation—with one hand.



THE CAMERA

Designed by a working cameraman, in consultation with many cameramen and camera service technicians around the world, the EMP is comparatively simple and reasonably rugged. The ergonomic grip allows secure one-hand operation. To reduce in-hand weight to 920 grams, the battery can be carried separately and connected by wire to the camera.

THE BATTERY

Sealed rechargeable 14.4 volt nickel-cadmium battery in quick-change package 20 mm wide, 90 mm high, 100 mm long will run approximately 1000 meters of film. An optional reloadable battery holder for ten pen-light cells will run the same amount of film when recharging from mains is not feasible.

THE VIEWFINDER

Critically alignable viewing system uses Bell and Howell type positive viewfinder objectives. Forward mounted eyepiece enables user to hold camera firmly at side of head. The optical system permits lateral extension up to 20mm to accommodate varying eye placement, or longer for left eye use. The finder folds against the side of the camera for transport. The entire finder assembly is easily removable for applications requiring no finder or for use with zoom lenses with AV30 short finder, for through-the-lens focus and viewing.

TIME BASE DISPLAY OPTION

A recently developed Hughes Microcircuit liquid crystal chronograph can be incorporated in the camera, with optics to image the display between the perforations once each second beginning at start. Readout, which needs no decoding, shows day, date, hour, minute, second, tenth.

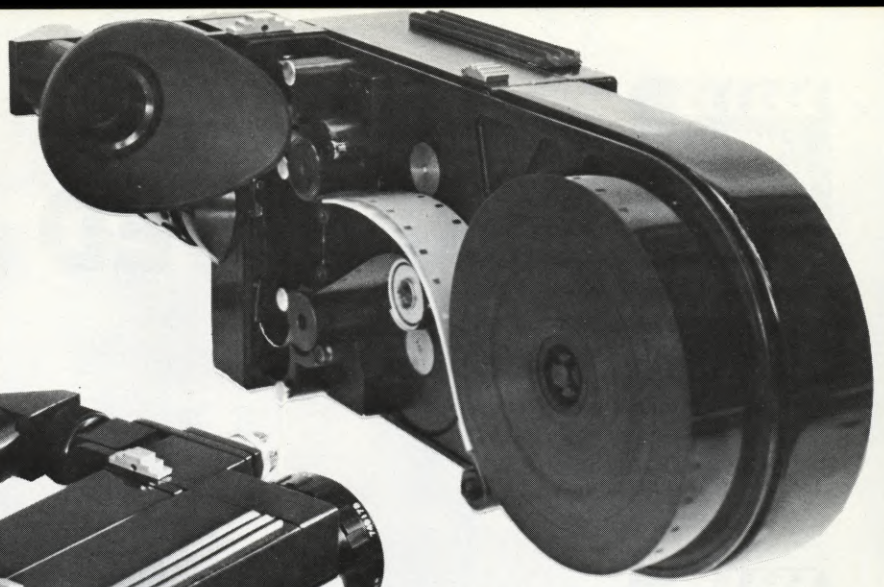
SOPHISTICATED SIMPLICITY

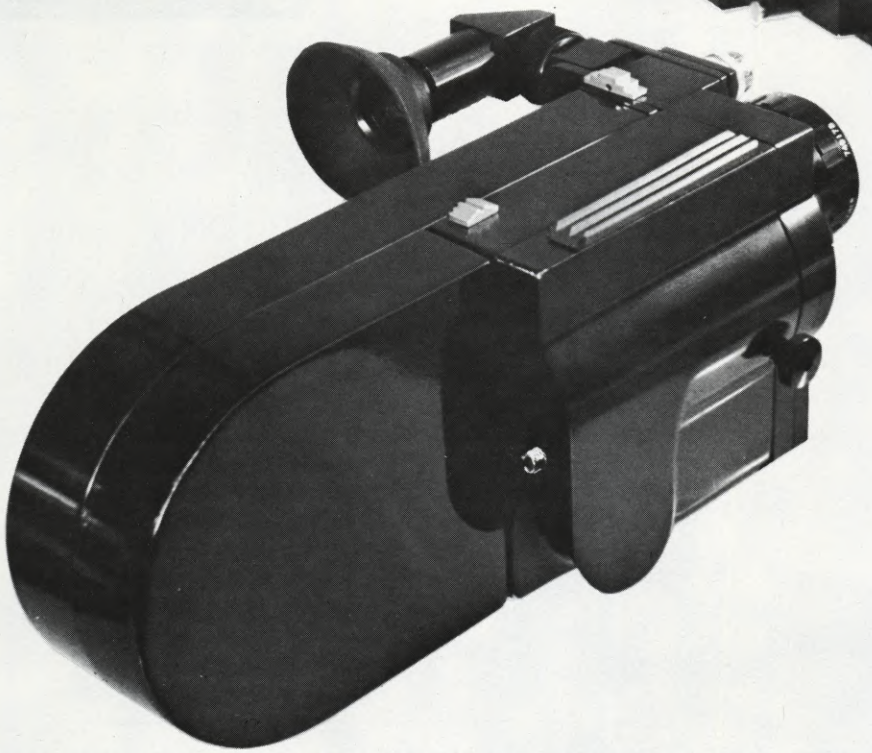
The EMP is an exceptionally simple mechanism, with only fourteen moving parts, seven in the cassette and seven in the camera head. Cassette mainplate and gears, aperture and pressure plate are Teflon® coated, to eliminate film scratch and need for lubrication. Direct drive gears are made on our own Mikron

watchmakers hobber. Retractable loop formers interlock with cassette cover for foolproof loading, while a locating claw retains film in exact alignment. Side guides: synthetic rubies.

FIVE SECOND RELOAD

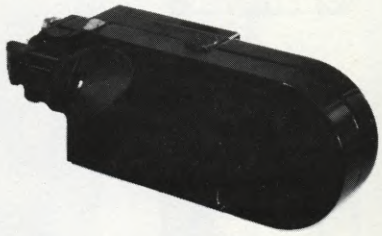
Many quick-reloading cameras have design compromises that trade focal plane repeatability or frame line variation for quick change capability. EMP cassettes have a solid bottom flat steel hook and a parallel-wedge draw-in for accurate repeatability. One slide latch releases and engages both the magazine and drive system.



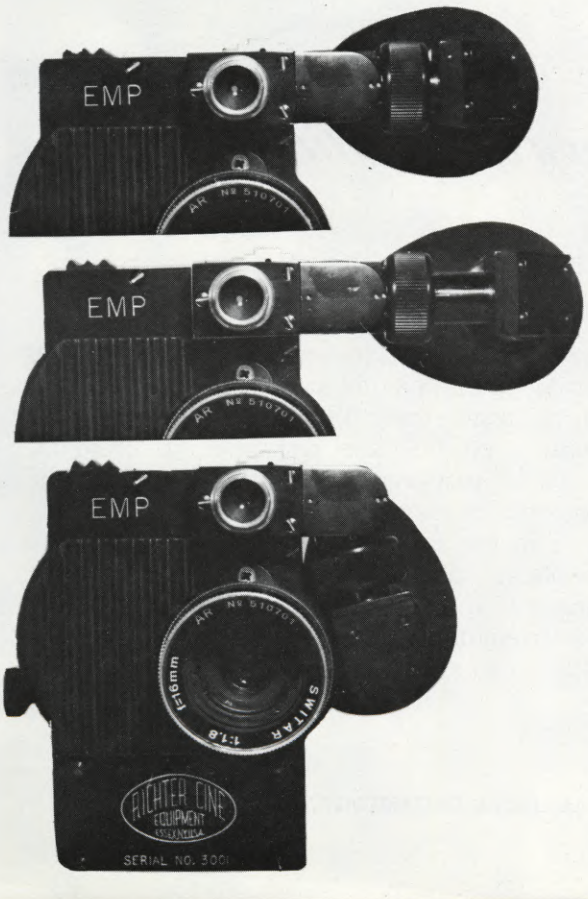


The EMP has only 14 moving parts—seven in the cassette and seven in the camera head. Retractable loop formers interlock with cassette cover for foolproof loading, while a locating claw retains film in exact alignment.

With this 30-meter core load magazine, the camera has its smallest envelope. Magazine must be loaded in the dark.



(ABOVE) Sealed rechargeable 14.4-volt Ni-Cad battery in quick-change package, will run approximately 1,000 meters of film. (BELOW LEFT) The optical system of viewfinder permits lateral extension up to 20mm to accommodate varying eye placement. It folds against camera body for transport.



THE FILM CASSETTES

30 Meter Core Load

With this magazine the camera has its smallest envelope. This chamber will also hold 60 meters of 0.06 mm polyester base film. It must be loaded in the dark. Retractable threading guides simplify loading.

30 M Daylight Spool

This makes the camera 52 mm longer and 8 mm taller, but offers the convenience of loading the cassette in subdued daylight.

120 M Coaxial Magazine

Has the torque motor inside the takeup hub, reducing the overall dimensions to 180 mm diameter, 36 mm width, 210 mm length.

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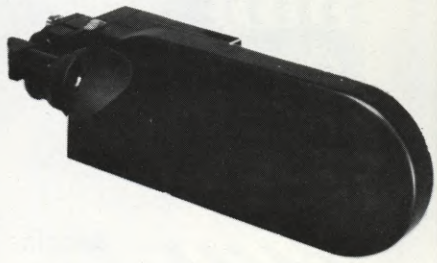
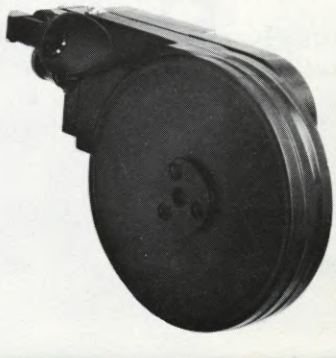
This 30-meter daylight spool magazine makes the camera 52mm longer and 8mm taller, but offers the convenience of loading in daylight.



This 120-meter coaxial magazine has the torque motor inside the take-up hub, reducing the overall dimensions to 180mm diameter, 36mm width, 210mm length.



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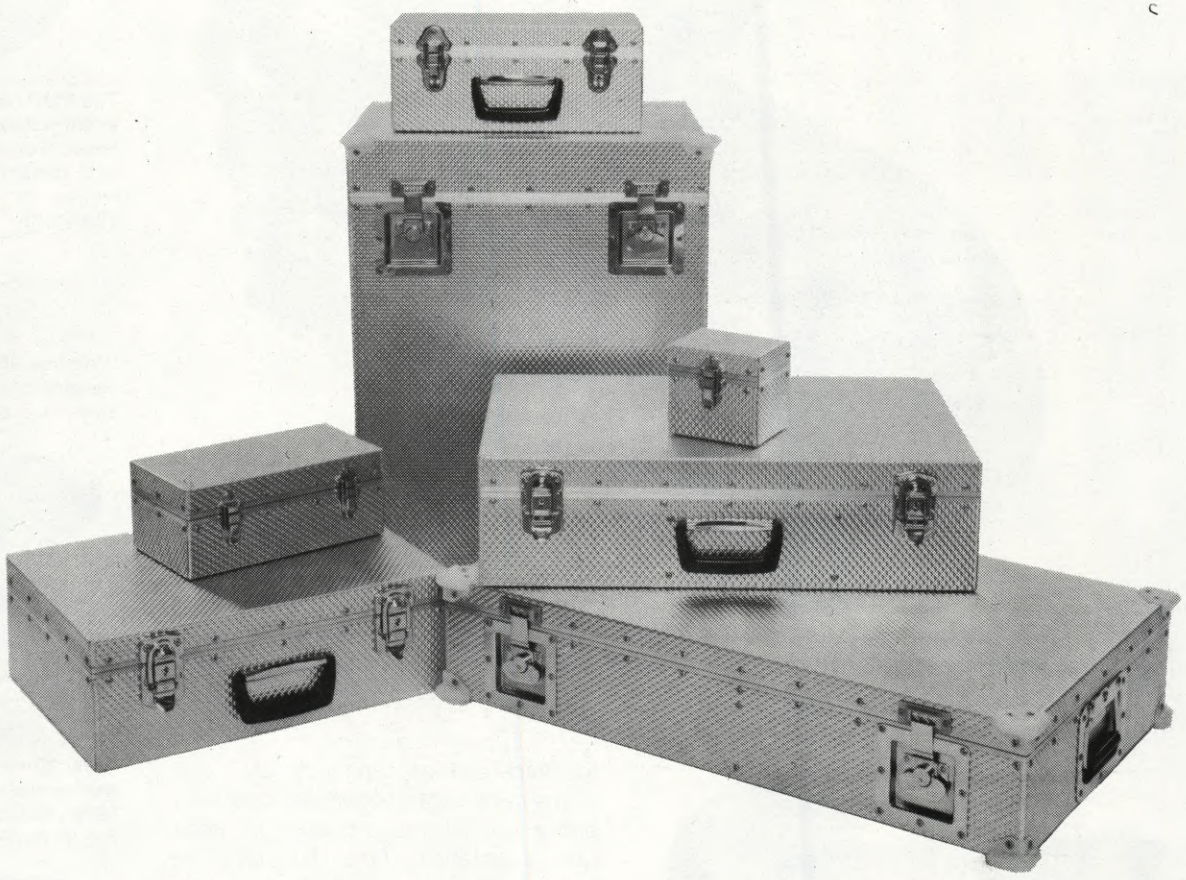

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Samcine Rigidised Cases are the most sensible answer to the problem of how to protect and transport delicate and expensive equipment of all kinds.

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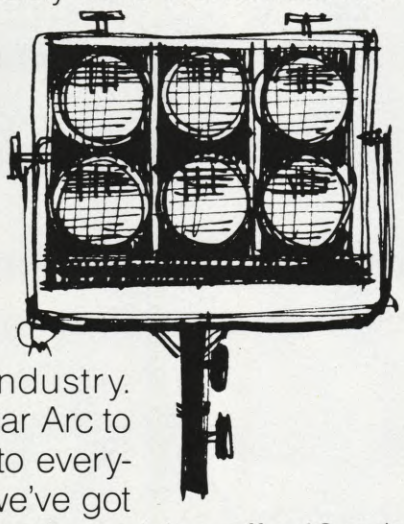

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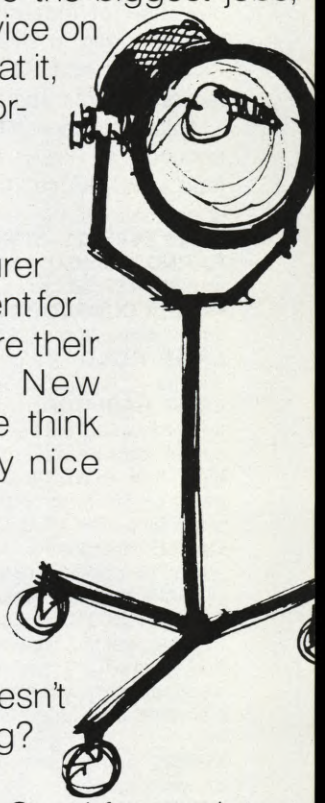

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LTM AMERICA INTRODUCES NEW LUXARC 4000 HMI LIGHT

Presented for the first time at PHOTOKINA '78: a complete new line of "daylight" HMI *LUXARC* lights, ranging from 575W to 4000W, of modular construction and capable of being serviced in the field

A complete new series of HMI Luxarcs were unveiled at *PHOTOKINA '78* by LTM America, Chatsworth, California, a subsidiary of LTM France.

TV and motion picture lighting engineers expressed great interest in the new Luxarc Mark II Series, Wally Mills, LTM America president, stated. "One of the main features going for them is that the striker tray can be removed in the field, if necessary, without disconnecting the wires and using only a screwdriver to remove four screws. This permits efficiency and speed, thereby cutting costs," he added.

Compact in size, the units range from 575W to 4000W, and are of modular construction, therefore more portable, Mills stated, "Another important feature is that they produce daylight type illumination without gels."

LTM also demonstrated a complete new line of incandescent equipment which ranged in size from 650W, 1KW, 2KW, 5KW and 10KW, for use in both motion pictures and television.

Among the new HMI Luxarc lights introduced at *PHOTOKINA* by LTM was their LUXARC 4000, with the following specifications:

HEAD TYPE: 211-510-4000 W
RATING: 120V/60 cycles, A.C., singlephase, or 220/245V/50 cycles, A.C., singlephase
POWER CONSUMPTION: 120V: approx. 42 amps. 220V: approx. 25 amps.
LAMP-HOLDER: on shock-absorbing springs
LAMP RADIATOR: machined aluminum in two parts, excellent heat dissipation, temperature on sockets will not exceed 190°C
IGNITION—SWITCH-OFF: switches on the back of housing, GREEN—indication of stand-by power. RED—indication ignition
CABLE: detachable, TITANEX type, length 10m, 19-conductors of 1.5 mm^2 with SOCAPEX type connectors
CONSTRUCTION: solid aluminum-sheet housing, welded, weather-proof and prevents any stray-light radiation; rugged cast aluminum structure ensures rigidity and special vents allow for perfect ventilation of housing
FINISH: epoxy-paint, navy-blue; electronics drawer—light-blue
YOKE: aluminum tubing, dia. 28.57 mm steel-spigot, male
MIRROR: type A 9 polished aluminum, anodized
CONDENSER: dia. 355 mm convex Fresnel lens
SAFETY FEATURES: wire-guard in front of lens micro-switch to cut-out power when front door is opened
FOCUSING: from back of lamphead
HOUR COUNTER: records, in tenths, actual working hours only, non-resetable
ELECTRONICS DRAWER: modular plug-in type, instant replacement
BALLAST: ALIMARC 4000 for mains 120V/60 cycles, with incorporated transformer, mounted on wheels, type 211-513
ALIMARC 4000 for mains 380 V/50 cycles, type 211-514
ALIMARC 4000 for mains 220/245 V/50 cycles with separate transformer, type 211-511
AT 5000 transformer for above ballast, type 211-512
ALIMARC 4000 for mains 220/245 V/50 cycles, with incorporated transformer and mounted on wheels, type 211-515
IGNITION—SWITCH OFF: possible also from ballast by means of two identical red and green switches
CIRCUIT BREAKERS: ALIMARC 120V: 80 amps. ALIMARC 220V: 40 amps.
BALLAST HOUSING: structure and cover in aluminum

Continued on Page 1229

The "star" of the new LUXARC Mark II Series of HMI lights introduced at *PHOTOKINA '78* by LTM America is this LUXARC 4000 model, the most powerful in the series and equal in light output to a 10,000-watt incandescent source. The housing is constructed of solid aluminum-sheet, welded, weatherproof, and designed to prevent any stray light radiation—an essential safety feature.

TWO NEW CASSETTE RECORDERS FROM Super8 Sound, Inc.

Two new cassette recorders for professional film or TV production—one of them a high-quality, super-sophisticated machine—the other, the lowest priced crystal (and cable) sync recorder on the market

At *PHOTOKINA 1978* Super8 Sound, Inc. of Cambridge, MA, U.S.A., introduced two new recorders for double-system filming: the XSDIV Crystal-Sync-Dolby Cassette Recorder and the Super8 Sound Sync Cassette Recorder I.

The XSDIV Recorder

This very high quality, small-sized and lightweight sync cassette recorder is well suited for film production in Super-8, 16mm, 35mm, as well as for video applications. The XSDIV is based on the recently introduced SONY TC-D5 Cassette Recorder.

The XSDIV Sync Recorder is a SONY TC-D5 stereo cassette recorder with Dolby, modified to include a built-in 60Hz pilotone quartz crystal oscillator. It can record sound in sync with any Super-8, 16mm or 35mm camera that is crystal-controlled or has a standard pilotone sync output. The XSDIV Recorder uses high-density chromium-dioxide, FeCr (Ferrochrome) or standard cassettes. In sync use, it is monophonic with sync on the right channel. It reverts to a stereo cassette recorder in non-sync use. In addition to cableless crystal-sync work, the recorder can be cable-connected to pilotone cameras. Cables are available for standard Tuchel (Arri, Bolex), Cannon XLR (Eclair), and BNC (Beaulieu) connections.

The XSDIV Crystal-Sync-Dolby Cassette Recorder is based on the recently introduced SONY TC-D5 Cassette Recorder. It can record sound in sync with any Super-8, 16mm or 35mm camera that is crystal-controlled or has a standard pilotone sync output. Transfers to 16mm and 35mm fullcoat magnetic film can be made by any sound lab with the use of the Universal Resolver.

The low-priced ($225 U.S.) Super8 Sound Sync Cassette Recorder I is based on the Superscope C-190 Cassette Recorder, considerably modified.

The 60Hz crystal pilotone appears on the right channel (track 2) when there is nothing plugged into the right channel microphone input jack. A pilotone cable plugged into the right channel overrides the crystal tone with the camera sync tone. Level is adjustable to compensate for a wide range of pilotone input voltage (.4V to 4V rms). The XSDIV Recorder has Dolby B noise reduction encoding and decoding circuitry. The 60Hz (50Hz) pilotone signal can be matched to the AC 60Hz (50Hz) line frequency for transfers to magnetic film on sprocketed synchronous dubbers. This requires the use of the optional Resolver Unit. Transfers to 16mm and 35mm fullcoat magnetic film can be made by any sound lab using an XSDIV Recorder and the Universal Resolver. Transfers to Super-8 fullcoat do not require the Resolver, since the Super8 Sound Recorder can match its speed to the 60Hz (50Hz) pilotone signal.

XSDIV Recorder Specifications:

Frequency Response: With FeCr Tape cassettes 30–16,000Hz (±3dB), with CrO_2 tape cassettes 30–15,000Hz (±3dB), Signal/Noise Ratio: FeCr tape cassette with DOLBY "OFF" is 59dB and with DOLBY "ON" 64dB at 1KHz and 69dB at 5KHz; Wow and Flutter: 0.06% (WRMS); Bias Frequency 85KHz; Pilotone Separation: 36dB; Crystal accuracy ±1 frame in 13 minutes –10°C to 40°C (50 ppm stability over temperature range; Power: DC 3V (2 ALKALINE D-Cells or NICAD) External power DC 6V; Size: 237 X 48 X 168 mm; Weight: 1.7 kg with batteries; Microphone input: 1/4" phone jack; Line input/output: RCA phono jack; Low impedance stereophone monitor output; Microphone sensitivity: 0.2mV (–72 dB) 200 ohms, 60Hz (50Hz) standard pilotone sync pulse on cassette track 2 (right channel); Speed control Input: Special power connector to Resolver.

Price and Availability:

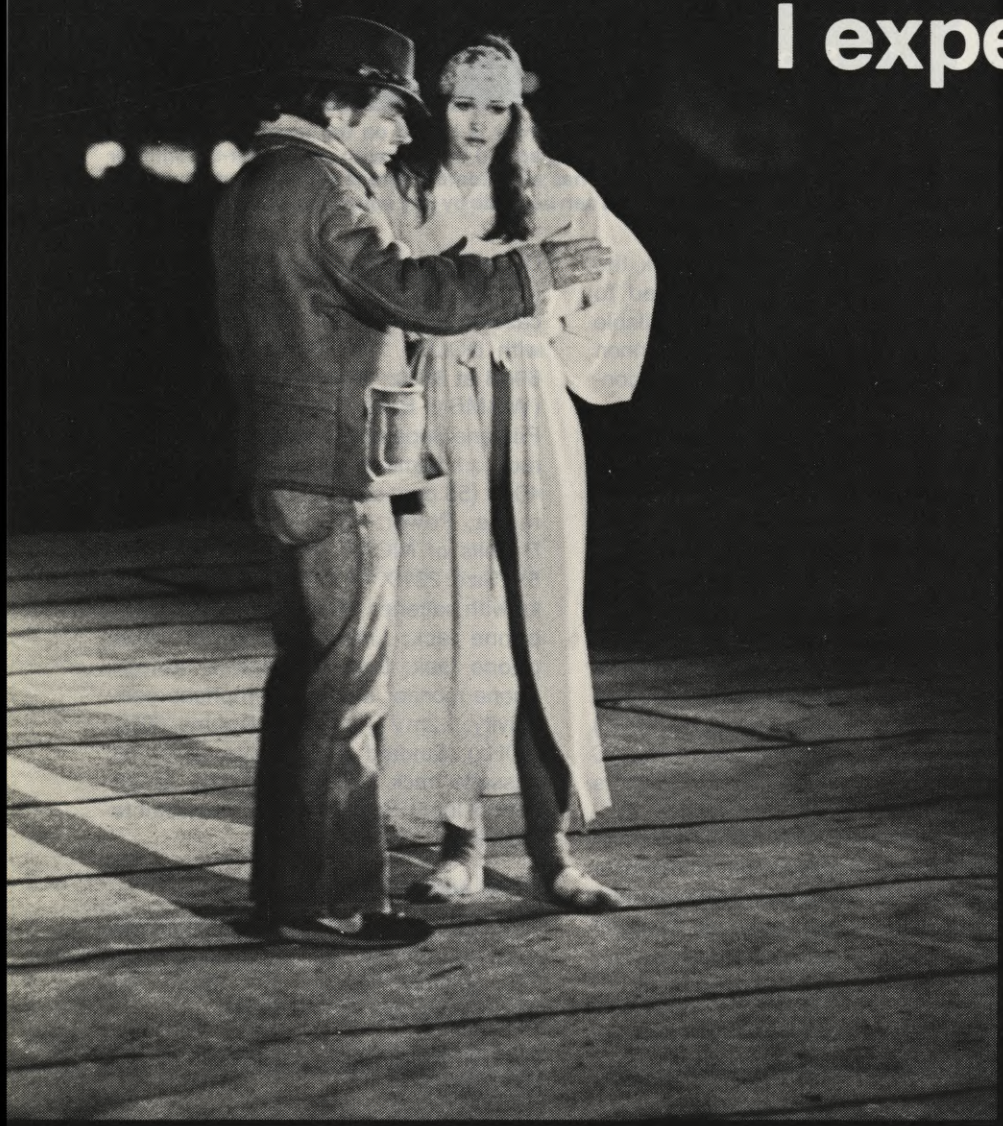
The U.S. cost of the XSDIV is projected at $1195 with first delivery in June 1979. The optional Resolver (for 16mm and 35mm only) will sell for $350.

Super8 Sound Sync Cassette Recorder I

At $225 (U.S.) this is the lowest priced crystal (and cable) sync recorder on the

Continued on Page 1231

"All in all, TVC delivered everything I expected."



"I want to express my appreciation to you and the team at TVC for giving us such great service and quality on SLOW DANCING IN THE BIG CITY.

"As the director of the movie, it was always a delight to see the rushes. The color quality and light density were always just what I had in mind when I made the shot and there were never any scratches or snowstorms on actor's faces. As the co-producer, I appreciated the 6 a.m. screenings, and all the extra trouble you guys went through.

"All in all, TVC delivered everything I expected. And your incredible salami was greatly appreciated by all hands."

John G. Avildsen,
Director
Slow Dancing in The Big City

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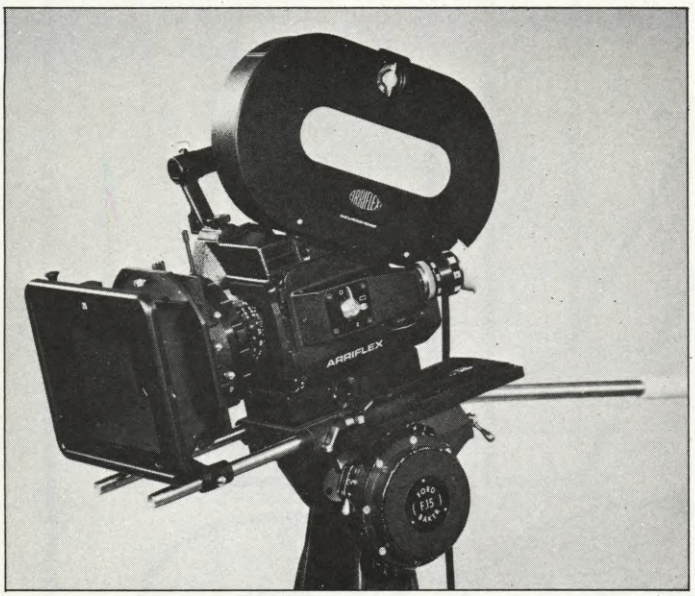
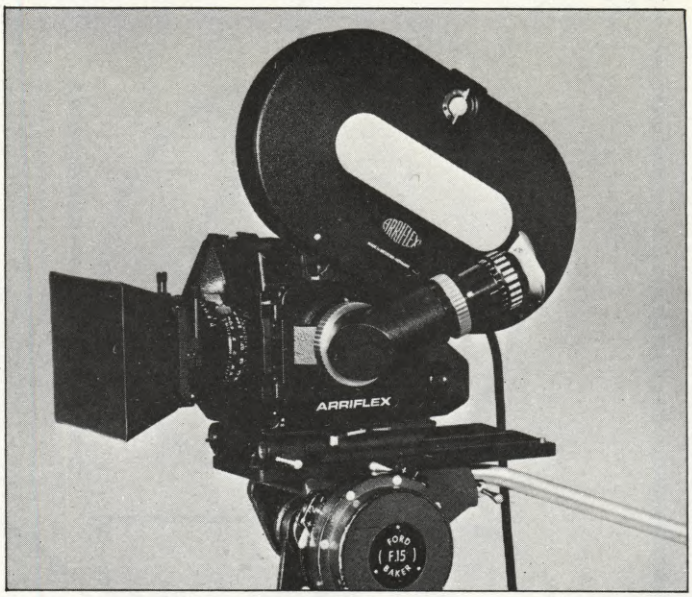


ARRIFLEX 35 III with anamorphotic camera door, 500 ft VR magazine and 4" x 4" production matte box, on adapter- and bridge plate Verstellplatte



ARRIFLEX 35 III with periscopic finder attachment and wide-field eyepiece, with Distagon 12 mm/T 1.3 and light-weight matte box on bridge plate

NEW FROM ARNOLD & RICHTER
Continued from Page 1171

has to be credited with the first application and subsequent introduction of HMI in the film and TV industry," Horst Bergmann said. "In 1972 we already did a considerable portion of the filming of the Olympic games with HMI lights and today we have perhaps the largest HMI lighting rental facility in all of Europe.

"Unfortunately, with limited production facilities in our two plants, we never managed to turn out HMI lights in quantities large enough to engage in any serious marketing effort, and particularly not for export. As part of our new policy, to give broader marketing support to all of our products, we have just purchased a large manufacturing facility near our main plant in Munich, which adds almost 100,000 square feet to our plant space. We expect to be able to gear up our lighting product manufacturing so we can become a major factor in the HMI lighting market within the near future."

With this, Horst Bergmann answered the question which has been on many a mind for quite a while—namely, why these obviously successful and well made lights have not been marketed outside of Europe. A & R has developed a most complete range of HMI's. Aside from the conventional 575W, 1200W, 2500W and 4000W, they also offer a double 4000W (8000W) and, for the first time shown at *Photokina,* a handsome 200W battery-powered handlight.

Utilizing the popular 200W Osram HMI globe, Arri has come up with a light which basically consists of the lighting fixture with integrated hand grip, the electronic ballast unit, a 7 AH nickel cadmium battery pack and a combination charger/AC buffer pack. These three modules mount together in a neat stack and, depending on application, one would use two or all three of them.

For portable, battery-powered application only the ballast and the battery need to be used. The 7 AH battery affords 1/2 hour of continuous operation and can be substituted with any properly rated 24V battery. For example, for stationary location applications, a 24V car battery rig would provide several hours of uninterrupted lamp operation. A real bonus is the electronic buffer for AC operation. In this mode, unlike other HMI systems, the Arri light remains absolutely flicker-free without changing the ballast unit in any way. Finally, the light is equipped with a set of LED's to indicate when the globe has reached full output and color temperature. A thumb wheel on the lamphead provides a good control range between full flood and spot. As far as could be determined during a demonstration at *PHOTOKINA,* the quality of the light, its flatness and pattern seem to be excellent. This light should be available to the U.S. market by next spring. But who knows, perhaps A & R has changed and is getting away from their historic time lag between introduction and availability? Perhaps it will be available sooner. Let's hope so!

Technical Data—Report 200 HMI Light

The Report 200 represents a universally applicable daylight (approx. 6,000°K) hand lamp. It has been specially developed for mobile use in motion picture and television applications.

The hand lamp can be operated from a special 24 V battery or in buffer operation from a 110/220 V mains supply. A special circuit in the associated power supply enables complete freedom from flicker at any camera speed and shutter opening. The hand lamp and the power supply have been designed for the rugged working conditions prevalent in film and television productions. The accessory program includes a rotatable four-leaf barn door with filter stage, dichroic filter 3.200 K and a transport case for the lamp with accessories.

Technical Data

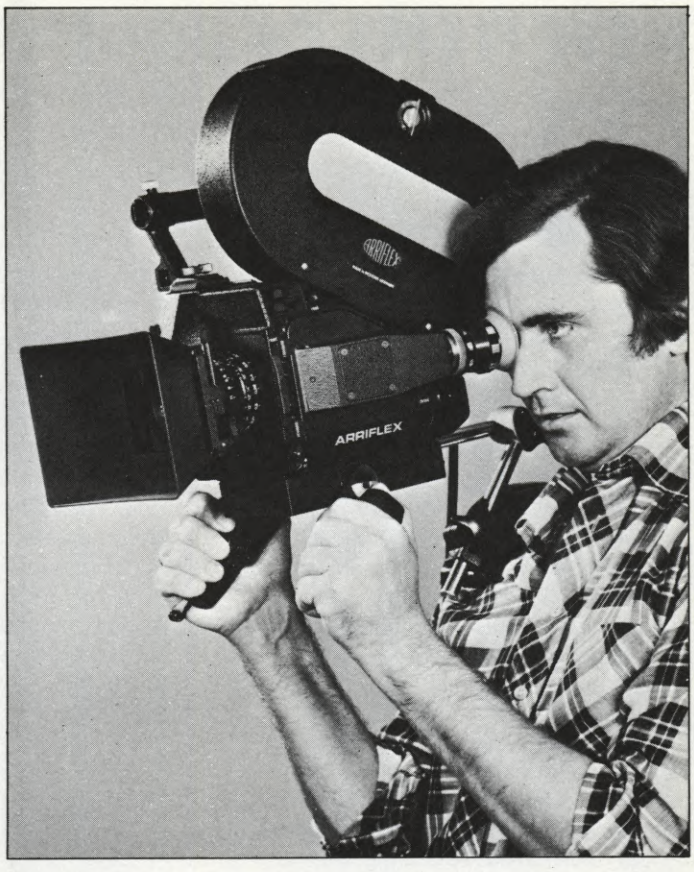
Lamp	HMI bulb 200 W
Operating voltage	battery operation 24 V Mains operation 110/220 V, 50/60 Hz
Battery	24 V, 7 Ah NC
Operating time at full charge	appr. 30 minutes
Charger and buffer unit	
Charging time when fully discharged	appr. 5 hours
Buffer operation	lamp operation is guaranteed independently of battery charge conditions
Dimensions/Weight	
Lamp	165x120x120 mm (without grip)/2 kg
Power supply	230x200x105 mm/3 kg
Charger/buffer unit	230x105x100 mm/3 kg
Battery	230x105x105 mm/5.5 kg

Technical specifications are subject to change without notice.

Arri Image Stabilizer

On one of their display tables, A & R had set up a video cassette player and monitor on which they showed, on request or by invitation, a video transfer of a short 16mm film shot with the new Arri Image stabilizer. The film, even though obviously done in a hurry without narration or titles, showed the impressive effects of a stabilizing system which can apparently be switched on or off during shooting, requires no camera modification and weighs only a few pounds. To

ARRIFLEX 35 III with 200 ft magazine and two hand grips



ARRIFLEX 35 III with 500 ft VR magazine and two hand grips on body brace

drive home the point, Arri had the whole picture shot by a slender camerawoman.

The Arri people maintain that their image stabilizer is not a variation of old stabilizing techniques, such as the liquid-filled lenses of the late 1960's, but rather a new patented system that can effectively work with any camera without the need of a trained operator and, most importantly, can be used by anybody, irrespective of physical build.

More than this, Arri wasn't prepared to tell or show, because the unit itself is still under a tight cover of secrecy. Availability has been indicated to be around June of 1979. If the stabilizer has no undetected limitations, it could well turn out to be the most intriguing item seen at *Photokina*. ■

The new ARRIFLEX 35 III and its special features:

Light and handy

Ready for operation with a 150 m magazine, the camera weighs only 6.5 kg. All switches and controls are clearly arranged.

Robust and easy to service

On practice-proven ARRIFLEX lines. the complete movement, mirror shutter and drive form a compact, interchangeable mechanical unit. The various electronic prints allow problemfree interchanging.

Film transport

The new, robust, technically highly advanced movement with registration pin guarantees outstanding image steadiness even at high frame rates of up to 100 fps.

Camera drive

The interchangeable, high-capacity and high-performance 12/24 V DC motor is connected to the camera drive by a toothed belt. The forward and reverse action motor is operated at frame rates
at frame rates of 6– 50 fps with 12 V,
at frame rates of 6–100 fps with 24 V.
Reverse running is possible at 25 fps.

Frame rates

The quartz control of the camera motor guarantees a constant 24 or 25 fps. An operating mode "Quartz variable" selector switch permits stepless adjustment of frame rates from 6–50 fps. In the 6–100 fps range, the HSU accessory is used for adjustments.

Film guide

A gap-type channel, the film being flattened by light spring pressure only at the film gate, prevents emulsion deposits to a very great extent. Film gates for academy format, silent format and scope can be interchanged without readjustments.

Lenses

On the ARRIFLEX 35 III, all 35 mm ARRIFLEX lenses with normal and steel mount can be used. For Scope shooting, we supply special lenses with mounts identical to those for the ARRIFLEX 35 BL and 35 BL II.

Viewfinder

The time-tested ARRIFLEX mirror reflex viewfinder system with rotating 180° shutter has been retained. An automatic standstill circuit always stops the shutter at the viewing position when the camera is switched off. The interchangeable viewfinder groundglass screens with various format frames have been taken over from the ARRIFLEX II C.
Two interchangeable viewfinder systems with fixed and pivoting viewfinder are available.

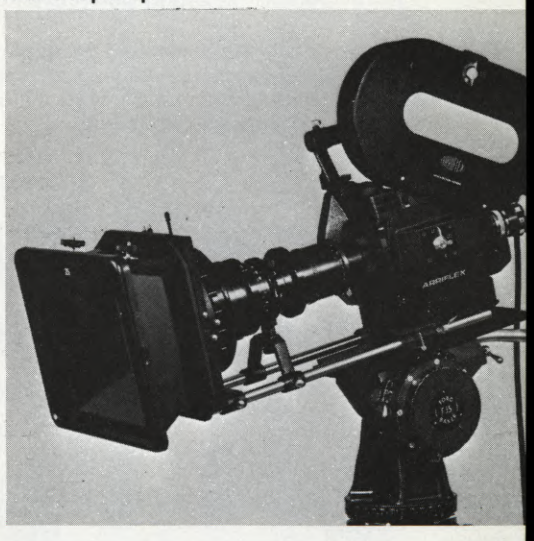
Scope shots

The viewfinder shows the full Scope format. A switchable anamorphotic element in the viewfinder system permits viewing of the normal or deamamorphosed Scope image in the viewfinder.

Electronics

The easy-to-service electronics, arranged mainly on 3 prints with 2 hybrid circuit packages, are easily accessible. They comprise:
selectable quartz control of the DC motor for 24 and 25 fps,
infinitely variable frame rates from 6–50 fps (with HSU accessory 6–100 fps),
integrated electronic speed indicator,
integrated electronic footage indicator,
frequency output for external pilotone derivation for 50 and 60 Hz,
automatic shutter standstill device,
out-of-synch indicator in viewfinder,
Continued on Page 1234

The Arriflex 35 III camera with Angenieux 25-250mm, T/3.9 zoom lens, with 6.6" x 6.6" production matte box on bridge plate with adaptor plate.



NEW ITEMS OF EQUIPMENT FROM STEENBECK

A wealth of sophisticated new developments, including 16mm and 35mm editing consoles (with improved optical and sound systems), rewinding tables, electronic counters and a small, compact sound recording unit

For *PHOTOKINA '78* the W. Steenbeck Company has further developed their world-renowned film editing and sound processing equipment program to meet most modern requirements in today's studio operations. Innovations being presented this year include the following:

The film processing Kobiton ST 1201, a two-plate film viewer for 16mm motion picture provided with COMOPT or COMMAG. This unit has already been equipped with the latest optical system of the new "STEENBECK" editing table generation. The 18-faced polygon in connection with a specially computed lens and condenser system gives, at all projection speeds, a very bright and brilliant picture. As in all other Steenbeck units the picture size is a uniform 21 x 28 cm. The drive is effected with contactless control electronics permitting infinitely variable speeds ranging from "inching" to super high speed to approximately 160 f.p.s. The design is compatible with the modern style found in all other Steenbeck units.

Another innovation is the 4-plate picture and sound processing table ST 1601. This unit too has the new optical system incorporated. A new sound-film traction is provided. In addition to the brilliant picture, the model offers first class sound reproduction. The electronic drive system is similar to that of the ST 1201.

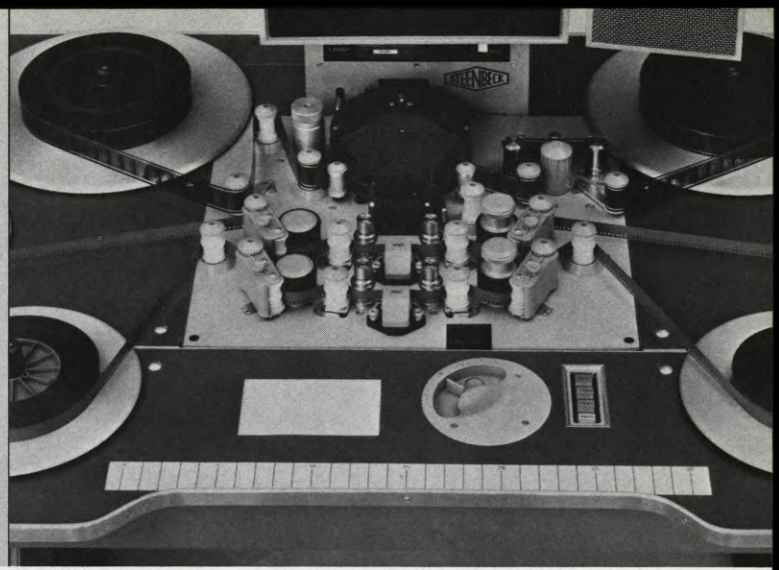
Together with the established ST 1901 and ST 901 models the 2-picture-8-plate table is re-introduced in a new design conception and available as the ST 921. This unit is, on both optical reproduction units, equipped with the new 18-faced polygon, and on the sound side provided with the well-tested mechanical sound drives of the 6-plate ST 901 editing table. Both sound tracks can be shifted in relation to the picture by one of two differential gears and the difference in both directions is displayed in frames. The electronic digital displays are arranged below the projection screen. In addition the unit is furnished complete with one electronic counter, the second as an option.

All the 4, 6, and 8-plate 16mm film editing tables can be equipped with the IRT-EBU time code system.

Another new development is the ST 701, a 6-plate 35mm unit also with the 18-faced polygon and electronic control similar to the 16mm units. The new polygon assures an almost flicker-free and very bright picture. The way of threading has been simplified and the sound quality has been very much improved. Both of the sound tracks can be shifted in relation to the picture by means of one of the two differential gears and the motion will be indicated in frames via digital displays in both directions. An electronic counter is standard.

The well-accepted 2-plate rewinding table ST 2500 suitable for all film sizes is demonstrated in a more developed design. The frictions are devised so that

(ABOVE RIGHT) An innovation is the picture and sound processing table ST 1601, incorporating new optical and sound systems for a brilliant picture and first-class sound reproduction. (BELOW) The 2-picture-8-plate ST 921 table is equipped with a new 18-faced polygon optical system. Both sound tracks can be shifted in relation to the picture by one of two differential gears and the difference in both directions is displayed in frames.



Another new development is the ST 701 editing console, a 6-plate, 35mm unit, also featuring the 18-faced polygon optical system and electronic control similar to the 16mm units. The new polygon assures an almost flicker-free and very bright picture. The way of threading has been simplified and the sound quality has been very much improved. An electronic counter is standard.

equal tape pull is provided in both directions enabling the operator to wind arbitrarily forward and backward.

All of the Steenbeck film processing equipment and editing tables have been equipped with a new amplifier system. These have been developed to use the most modern standards of integrated control technology, permitting exact adjustable level and treble equalization for each individual channel. Each of the pre-amplifiers is interconnected via a bus bar to a group amplifier which is equipped with a total level controller as well as controller for treble and bass boost. By this a pre-adjusted mixture can totally be changed in volume and sound performance. The output of the main amplifier has been raised to 30 watts. A 3-way loudspeaker system especially fitted to the amplifier performs excellent reproduction. The editing machines can optionally be equipped with a 2-channel amplifier and a second loudspeaker for the reproduction of stereo sound tracks. The group amplifier is provided with a headphone jack. Headphones for mono or stereo can be connected. The jack can also be utilized for measuring and test purposes. Upon request, the group amplifier can be equipped with one or two symmetrical studio outlets.

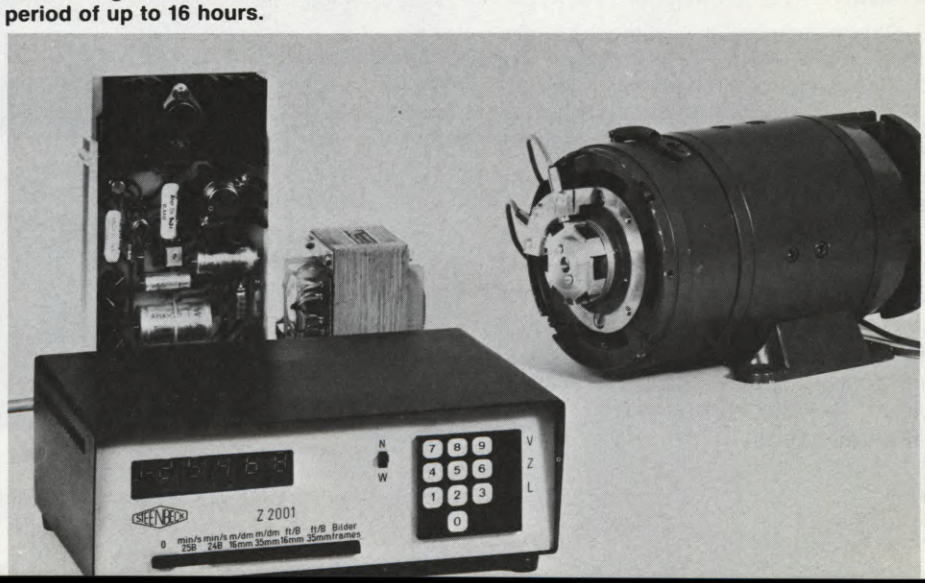
All editing machines can be electronically interlocked. The true-to-frame synchronous follow-up of an additional unit is controlled through the operation of one unit. While using interlock mode the slave will follow at frame accuracy at all speeds and in all directions.

Another innovation in the Steenbeck program is a small, compact sound recording unit for 16mm perforated sound tapes. This unit is identified as the ST 1. It is equipped with a new drive system. The entire controlling electronic functions on

Continued on Page 1234

The well-accepted 2-plate rewinding table ST 2500, suitable for all film sizes, is demonstrated in a more developed design. The frictions are devised so that equal tape pull is provided in both directions, enabling the operator to wind arbitrarily forward and backward.

In its delivery program, the W. Steenbeck Company offers electronic counters of various designs, including the high-quality, key-operated counter Z 2001 (shown here) on which all conventional and commonly used film and counting modes can be selected by simple keyboard selection. Other models are provided with program circuit boards for all modes of counting. One of them (the Z 2007) will even memorize and store the last counting for a period of up to 16 hours.



Continued from Page 1199

crystal sync, the recorder can be cable-synced with any pilotone camera.

Specifications include: Frequency response with FeCr tape is 30-16,000Hz ±3dB; Signal/Noise ratio with FeCr tape and "Dolby On" is 64dB at 1KHz and 69dB at 5KHz; Wow and flutter is 0.06% (WRMS); Bias frequency 85KHz; pilotone separation is 35dB; crystal accuracy is ±1 frame in 13 minutes –10°C to 40°C (50ppm stability over temperature range; power requirements DC 3-Volt (2 Alkaline D-Cells); weight with batteries is 1.7kg; dimensions are 237x48x168mm.

The XSDIV will become available in June 1979 at an estimated cost of $1500. The resolver unit (required only for 16mm and 35mm work) will sell for $350. More information from Super8 Sound, 95 Harvey Street, Cambridge, MA 02140.

COSINA

Cosina has introduced two new camera models that will accept the 200-foot cartridge. The XL-204 Macro and the 206 Macro. Except for their lenses, both cameras are identical.

Cosina XL-204 Macro: Apart from the 200ft. capability, this camera features the following: f/1.2 9-36mm macro focusing lens (down to 6cm); manual and power zoom; split image TTL focusing; automatic and manual exposure control; 220°XL shutter; running speeds with sound 18 and 24fps (and strangely 20 and 26 fps when running silent film); automatic and manual recording level control; frequency response 30-10,000Hz; 0.4% wow and flutter; signal to noise ratio 40dB; with detachable uni-directional microphone; weight is 1.32kg or about 2.75 lbs. Accessories, including a wireless FM microphone, are available. The 206 Macro model features a f/1.8 7.5-45mm lens.

CHINON

Chinon introduced a number of new Super-8 products, including the long-awaited Pacific 200/8XL Sound camera, first shown in prototype at the Chicago PMA show last April. Most of these new products will be available by December, 1978.

Chinon Pacific 200/8XL: This camera's most significant features are its 200-ft. capacity, lap dissolve facility for picture and sound and its XL capability. Other features: f/1.4, 7-56mm macrofocusing lens; power and manual zoom; XL 220° shutter; automatic and manual exposure system; running

(ABOVE) Super8 Sound Cassette Recorder I is a low-cost crystal and cable sync cassette recorder which marks the beginning of a system to radically lower the cost of double-system sound. (BELOW) The XSDIV Crystal Sync Cassette Recorder from Super8 Sound is a Sony TC-D5 stereo cassette recorder with Dolby, modified to include a built-in 60Hz pilotone quartz crystal oscillator. It can record sound in sync with any Super-8, 16mm or 35mm camera that is crystal-controlled or has a standard pilotone sync output.

speeds of 1, 18, 24, 25 fps with 36fps instant slow motion; time lapse capability; magnetic release; automatic or manual recording level control; sound and picture fades; 72 frame dissolves for both picture and sound; monitoring; camera mounted uni-directional telescopic microphone; sync socket for double-system work; excellent viewfinder data display of all functions. Weight: 1.7kg or about 3.5 lbs.

Chinon Sound SS 1200 Projector: This is Chinon's new top of the line projector. It is a true stereo projector with 1200-ft. (one hour at 24fps) capacity. Its most significant features: 1200-ft. capacity; 18 or 24fps running speeds with electronic speed adjustment; auto threading; 15V/150 watt projection system with lamp high/low switch; projection lens is f/1 15-30mm; Automatic and manual sound level control; sound-on-sound recording; track-to-track sound transfers; power output per channel is 15 watts.

Chinon Sound DS 300 Projector: This is Chinon's version of the Super-8 rear screen sound projector. Primary features: 9x12-inch rear screen with 14mm f/1.4 lens and 100 watt dichroic projection; projection speeds are 18 or 24fps; sound-on-sound is possible; recording control is automatic only; power output is 5 watts.

EUMIG

Eumig, as usual, showed numerous innovative products, including an ultrasonic auto-focus camera, a watertight underwater camera; optical height adjustment projectors and a Xenon theatre projector.

Auto focus 4XL Camera: The most unusual feature is the auto focusing system. It uses ultrasonic range-finding to focus the camera. This ultra-sonic system automatically and continuously focuses the camera on the object seen in the viewfinder between 1.5m and infinity, utilizing the reflections of a continuous stream of ultrasonic pulses transmitted from the camera. The time between the pulse leaving and returning to the camera is measured, converted into distance and used to focus the lens.

This should be an excellent system for low-light filming because the focusing is independent of prevailing light levels. Other features of the 4XL include: f/1.2 8-32mm macro lens; 220 XL shutter; several film speeds including 18 fps and a slow motion speed; variotimer; optional wide angle lens adapter for 5.5mm setting.

Eumig Sportsmaster: This unique camera has been designed for use

Continued on Page 1222

The new Bauer S715XL Microcomputer camera marks the first application of the microcomputer to a Super-8 camera. It features a newly designed Angenieux f/1.4, 6-90mm multi-coated macro-zoom lens. The microcomputer controls a vaste range of sophisticated functions for both silent and sound filming, making the S715XL quite probably the most advanced Super-8 camera on the market.

The new Bauer T-610 Microcomputer Stereo Projector employs recent microomputer technology to help simplify the post-production work of otherwise complex sound films. This projector, in conjunction with the programmable computer, offers immense facility for accurate sound work.

Continued from Page 1169

stacking) that are quickly convertible from HMI to tungsten-halogen inserts, or vice versa.

In addition to the aforementioned Report 200 HMI Light by Arri, the LEE 200 Strobe-free Portable Light by Lee Enterprises is most impressive among the smaller HMI luminaires.

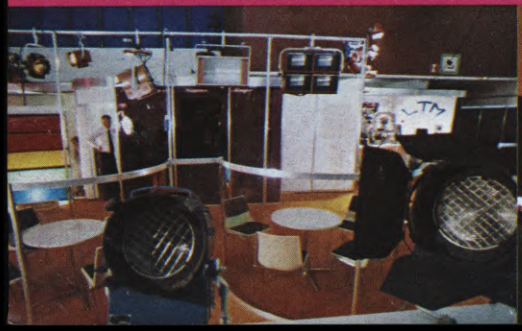
Perhaps the most exotic piece of lighting equipment in the entire show is Quartzcolor Ianiro's SIRIO 1 KW Tin-Halide Spotlight, the first spotlight design in the world to utilize the new tin-halide lamp introduced by Philips at *PHOTOKINA '78.* It is an AC-operated "daylight" arc source with a spot/flood ratio of 10:1. It would seem to be a most promising unit, even though the hot restrike problem has not yet been solved.

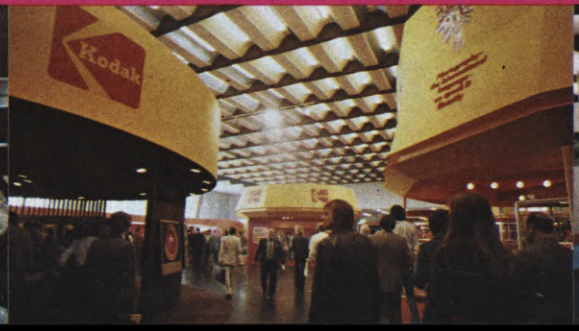
Another element which was big news at *PHOTOKINA '76,* but which is now routinely accepted at *PHOTOKINA '78* is Time Base Code. Even though lack of standardization has kept it from being widely utilized in the industry, more and more manufacturers have quietly built the capability into their cameras, recorders and editing machines. They feel that its wide acceptance is merely a matter of time and they are just waiting to find out which electronic module to slip into their equipment. The new Cinema Products U/F-16 editing console, for example, is designed for quick conversion to Time Base Code—if and when.

Over at the Elemack stand there is new flat dolly track, designed to be much easier on dolly wheels than the familiar tubular variety, but there is also the prototype of an exciting new miniature dolly that features a hydraulic ram (with soft start and stop) that takes the operator right along with it as it rises and falls. What makes this dolly truly unique is that the hydraulic ram is of triangular configuration, rather than cylindrical, thus offering far greater stability. What will this new dolly be called? The Elemack people haven't quite decided yet, but since they seem to be uncommonly fond of bugs (The SPYDER, The MANTIS), there is a rumor that it will be called The CRICKET.

Tipped off by eagle-eyed David Samuelson, I make my way through the

The beautiful and imposing Cologne Cathedral has long since become an unofficial symbol of *PHOTOKINA* and an art motif for its posters. Hotels in this bustling city on the Rhine are filled to capacity long in advance of *PHOTOKINA,* and some visitors are accommodated aboard Rhine steamers, such as the one in the foreground.





maze of vast exhibition halls to Hall 4, where, tucked away in an obscure corner, I find a most ingenious piece of equipment. It is a German-made unit called the SYSTEM-TON Sound Editing Device, a small table-top console which, utilizing up to four cassettes, performs a vast variety of sound editing functions involving commentary, music, trial mixes, corrections, sound effects and the final mix. It does away with splicing (cutting is done electronically) and having to cope with tiny snippets of tape. Represented as having been designed for 16mm and professional Super-8 filmmakers, it strikes me as a device that could prove most valuable in low-budget production utilizing those formats.

During my wanderings through the hallowed halls of *PHOTOKINA '78,* it comes as no surprise to me (although it surely would to some) that, taken as a body, the most sophisticated equipment displayed here is that devoted to the requirements of the professional Super-8 filmmaker. There seems to be no end to the ingenuity and electronic versatility embodied in the new breeds of cameras (sound and silent), recorders, projectors and editing devices devoted to this specialized area of production—and all of it packed into such diminutive units.

Outstanding in this category are the two new cassette recorders introduced by Super8 Sound, Inc., a company which specializes in the most advanced Super-8 equipment to be used by professional filmmakers. Their XSDIV Sync Recorder is based on the recently introduced SONY TC-D5 Cassette Recorder with Dolby, and has been modified to include a built-in 60Hz pilotone quartz crystal oscillator. It can record sound in sync with any Super-8, 16mm or 35mm camera that is crystal-controlled or has a standard pilotone sync output. Transfers to 16mm and 35mm fullcoat magnetic film can be made by any sound lab, using an XSDIV Recorder and the Universal Resolver. Transfers to Super-8 fullcoat do not require the Resolver, since the Super8 Sound Recorder can match its speed to the 60Hz (50Hz) pilotone signal.

The second item from the same company is the Super8 Sound Sync Cassette Recorder I, based on the Superscope C-190 Cassette Recorder. At $225 (U.S.) this is the lowest priced crystal (and cable) sync recorder on the market. As such, it is an initial step by Super8 Sound to hold down costs for the low-budget filmmaker. Used in tandem with a crystal-controlled Super-8 camera, the necessity of a sync cable between camera and recorder is eliminated.

Easily the "gem" among all the items of professional Super-8 equipment which I examine at *PHOTOKINA '78* is the amazing new Bauer S 715 XL Microcomputer Super-8 Sound Camera. With its comprehensive electronics and first-ever application of a microcomputer, the S 715 XL is definitely in a class by itself. It offers such a wide range of refined equipment features [detailed on Page 1202 of this issue] and many-sided creative possibilities, coupled with ease of operation, that it marks a highpoint in design of cameras—of any format.

Making its *PHOTOKINA* debut and sparking considerable favorable comment is MOVIECAM, which was previewed last year at FILM '77 (see *American Cinematographer,* September, 1977). Originally adapted from a Mitchell Standard Hi-Speed Camera, it has been modified to such a high degree of sophistication that it constitutes a unique piece of equipment.

MOVIECAM is a self-blimped, compact 35mm mirror-reflex film camera, described by its creator, Gabriel Bauer, as "suitable for studio and shoulder operation." (It probably is—provided that you have a shoulder strong enough to bear its weight of 30.8 lbs., including magazine.) Be that as it may, the movement is dual-pin registered with a 4-pin film transport system providing continuously variable speeds from 3 to 140 frames per second and stop-motion, in addition to the standard 24 and 25 frames per second.

An outstanding feature of MOVIECAM is its Moviespeed System, which, through the use of a unique interlock mechanism coupled to the lens iris, makes it possible to alter camera speeds during continuous shooting, while maintaining even exposure of the film. A gimmick this may be, but a potentially valuable one in the shooting of sports films and TV commercials.

The camera incorporates a high-contrast television pick-up tube which can feed TV monitors and a video tape recorder. A built-in safety circuit prevents damage to the pick-up tube, if left pointed at a strong light source.

Another unique feature of MOVIECAM is the built-in "Digiclapper", which prints in a dialled scene number on the first frames of a take. This also provides

Continued on Page 1237

Continued from Page 1219

underwater, in the rain and in dusty or sandy locations. It is fitted with a calibrated depth gauge and a detachable viewfinder. Specifications include: f/1.9, 9-30mm lens (adaptable to 5.5mm with the PM Aspheric lens (7.9mm underwater); servo focus; macro filming; reflex viewing and metering; automatic metering with ±1 f/stop override; 18fps and single frame running speeds; depth gauge; PM Aspheric wide angle adapter.

Optical Height Adjustment Projectors: The new Eumig S912 projector features optical height adjustment that allows geometrically and optically corrected adjustment of the projected image. This means that rather than stuffing books under the projector in order to raise the image higher on the screen, this new Eumig system does the raising optically without the usual trapezoidal distortion.

The S912, in addition to the optical height adjustment, also has some other excellent features: f/1.3, 15-30mm lens with 12V/100-watt tungsten-halogen lamp; 18 and 24fps running speeds; 600-ft. reel capacity (coaxial take-up and feed); dual track recording; frequency response at 24fps is 75-12,000Hz; new bronze color.

Xenon 850 Superlux: The new Eumig 850 Superlux is suitable for projection on cinema-size screens. This Super-8 sound film projector has a 300W xenon lamp.

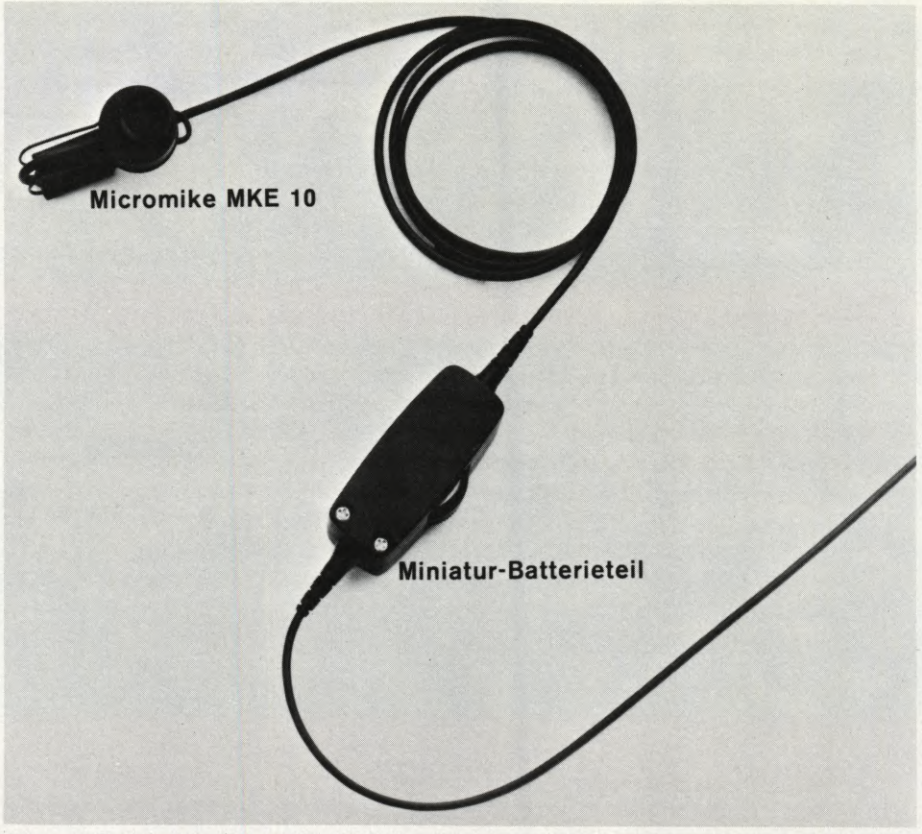
The miniaturized xenon lamp is combined with a specially-coated dichroic cold light reflector. The lamp can be immediately ignited at any time, and has about four times the output of a conventional 12 V/100W halogen lamp. It has a colour temperature of 5,400° Kelvin. The specially-coated high-speed zoom lens (f/1.3, 15-30mm) gives a brilliant image.

To completely protect film, optical system and projector against thermal damage, the projector was given a larger lamp housing and a special cooling system. The projector can accommodate film reels of up to 240m (800 ft.).

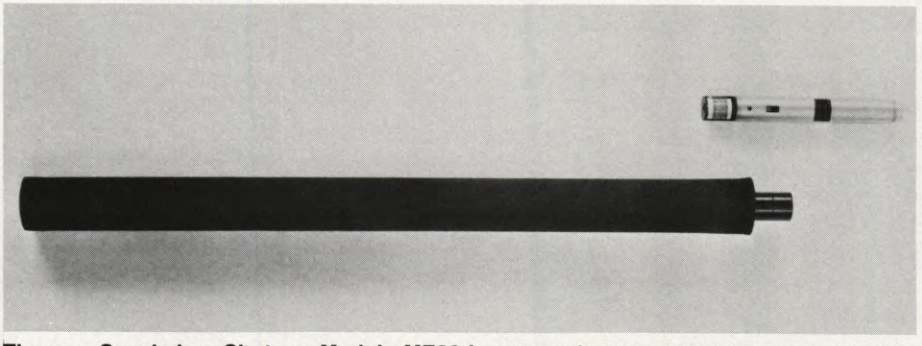
Eumig also introduced three new XL sound cameras: Eumig Makro Sound 33XL, 44XL, and 66XL. The 66XL features an f/1.2, 7-45mm lens with macro; auto-fading; dichroic focusing; film sensitivity up to 400 ASA.

BAUER

Bauer introduced numerous new camera and projector models at Photokina. One camera, the S715XL microcomputer, and one projector, the T610 microcomputer stereo, were truly outstanding in concept. A brief description follows:



The new Sennheiser Mikromike MKE 10 microphone is extremely small and suitable for concealment under clothing, etc., during filming. It is now available in two versions: one with a miniature power supply and on/off switch—the other, with proper connector, for use with the existing Electret powering module K1, K2 or K3.



The new Sennheiser Shotgun Module ME88 is a true shotgun microphone specifically designed for filmmaking use. It is incredibly light in weight (56 gms, including windscreen) and is extremely directional. Frequencies below 100Hz are rolled off to reduce handling and camera noise and it can be mounted (with accessory mount) on most cameras.

S715XL microcomputer camera: Apart from the first application of the microcomputer to Super-8 cameras, this model features a newly designed Angenieux f/1.4, 6-90mm multi-coated (macro) zoom lens. To fully appreciate this 15X zoom range, imagine a 35mm still camera with a focal length range from 38mm to 563mm.

The microcomputer controls all the important functions for silent and sound filming: filming speeds of silent or sound cartridges at 9, 18, 24, and 40fps; an interval timer and single frame control; automatic scene length control; fully automatic starts with pre-programmable scene ends; control of all 4 camera motors to provide distortion-free audio start-ups.

Other features: fades and dissolves with silent or sound films; 200°XL shutter; film counter with memory; automatic and manual exposure and recording level control; variable attenuation of automatic level control; human engineering includes adjustable viewfinder eyepiece with diopter indicator, three eyepiece cups, adjustable brow rest and adjustable shoulder stock.

A companion model, the Bauer S709 XL microcomputer camera, has the same specifications but a different lens: the

f/1.2 6-51mm macro lens.

Bauer T-610 microcomputer stereo projector: Here too, Bauer has applied recent microcomputer technology to help simplify the post-production work of otherwise complex sound films.

The T-610 is based on the successful T-600 stereo projector—but with the addition of microcomputers. The basic specifications include: Schneider f/1.2, 15.5-28mm or f/1.1, 11-30mm projection lenses with 150-Watt/15-Volt halogen lamp; running speeds are 18 and 24fps with manual inching possible; two tooth pulldown to insure accurate passage of even damaged film sprockets; loop former; frequency response of 24fps is 50-1200Hz with wow and flutter at less than 0.3%; true monitoring via an additional sound head; power output on this stereo projector is 20W per channel.

This projector, in conjunction with the programmable computer, has immense facility for very accurate sound work. Techniques possible include:

1. In the duoplay mode an electronic scanning system allows automatic twin-track sound mixing during playback. During playback, the principal sound occurrence on one track is used to control fades (in and out) of a second sound occurring on the other track.

2. Programming: The projector may be programmed to go into a recording sequence on the "fly" or while stationary. In the stationary programming mode very accurate inserts are possible. The programming function can also be used to make the projector adaptable for accurate editing without using a separate film editor.

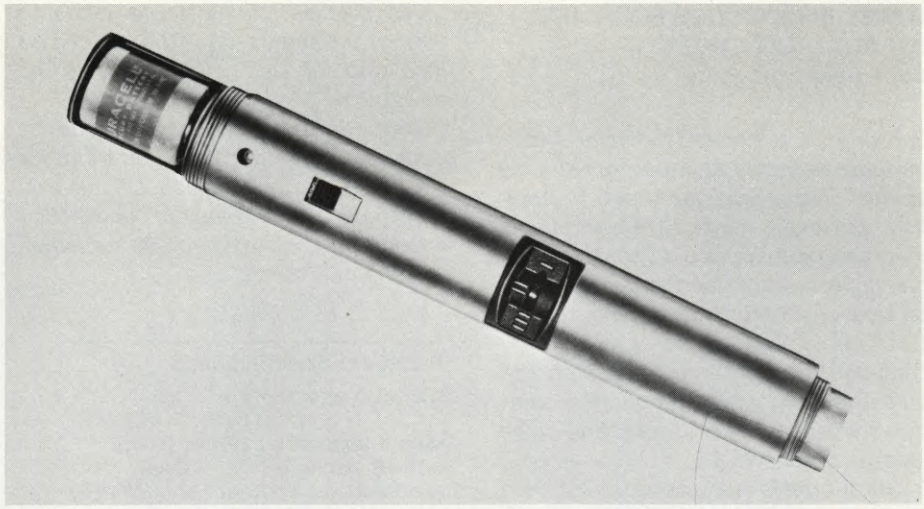
3. The computer can also activate a separate recorder in a specific sequence and compensate for the recorder start-up time prior to beginning its recording program. During programming, the recorder will also compensate for human reaction time.

4. Track-to-track transfers and echo sequences are also possible.

CANON

Canon introduced two new single-system sound cameras with familiar designations: The Canon 814XL-S and 1014XL-S. The primary differences between the two models are the lenses (6.5-65mm, f/1.4 for the 1014XL-S and 7-56mm, f/1.4 for the 814XL-S), macro-focusing (the 1014XL-S at telephoto and 814XL-S at wide angle), sound system specifications and in the way film transport errors are displayed in the viewfinder (the 1014XL-S features a new holographic system).

Common features of the new Canon sound cameras are: Power or manual zooming (powered at 5 or 10 seconds for the entire focal length range); TTL viewing and metering; automatic and manual exposure control; filming speeds of 1, 9, 18, 24 fps with 36fps instant slow motion; (sound film will run only at 18 or 24 fps); picture and sound fades are possible; variable shutter from 150° to 220°; recording level control is automatic and manual; weight of the 1014XL-S is approximately 2.1 kg or 4.25 lbs.



The new Powering Module K3 for the Electret series Sennheiser microphones will replace both the K1 and K2 modules. Its major improvement has been the addition of a two-step built-in bass attenuator, which is absolutely necessary for film work where the microphone may be camera mounted, hand-held or boom mounted.

MASHPRIBORINTORG

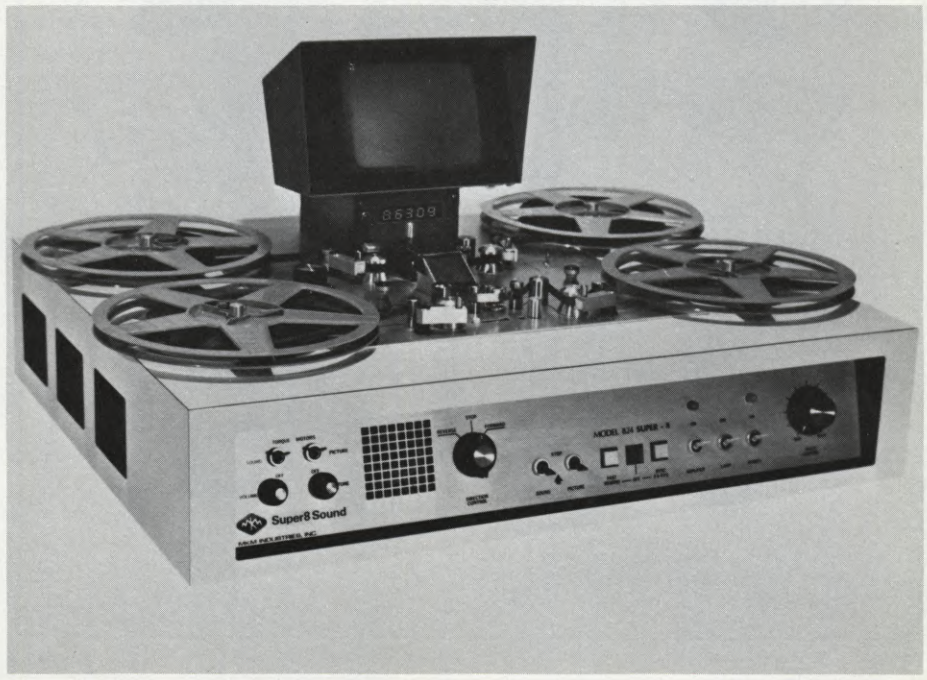
Have you ever wondered about the Super-8 cameras that the Russians use? Here is one of their newest models: The Quartz 1X8S-2. Its main features include: f/1.8, 9-38mm lens; automatic and manual aperture control; filming speeds of single frame, 8, 12, 18, 24 and 32fps; TTL viewing; spring driven camera motor; uses standard "KODAK"-type film cartridge; accepts film speeds of 11 to 180 GOST units. Close-up lenses are available. The Quartz 1X8S-2 is a silent camera.

SENNHEISER ELECTRONIC:

The Sennheiser modular Electret microphone system has been expanded with the addition of two new microphone heads and a new powering module. The new components have been designed for

Continued on Page 1238

The only American-made professional Super-8 editing table on display at *PHOTOKINA '78*, the MKM flatbed console is a 4-plate, electronically controlled, horizontal editing machine accommodating one Super-8 picture and one Super-8 fullcoat sound track. It features almost all of the sophisticated characteristics of a 16mm editing console.



LOWEL INTRODUCES FOUR NEW LOCATION LIGHTING KITS
Continued from Page 1187

cessories were created for Omni. These include not only full but graduated scrims—and a modular snoot. In addition, the Tota-system's light control and mounting gear are also compatible. This means less weight and more versatility on location. Shared components convert Omni into a daylight source; a focusing semi-soft light; and an efficient umbrella unit. They mount the light on walls, windows, doors, partitions, pipes and poles (see "components").

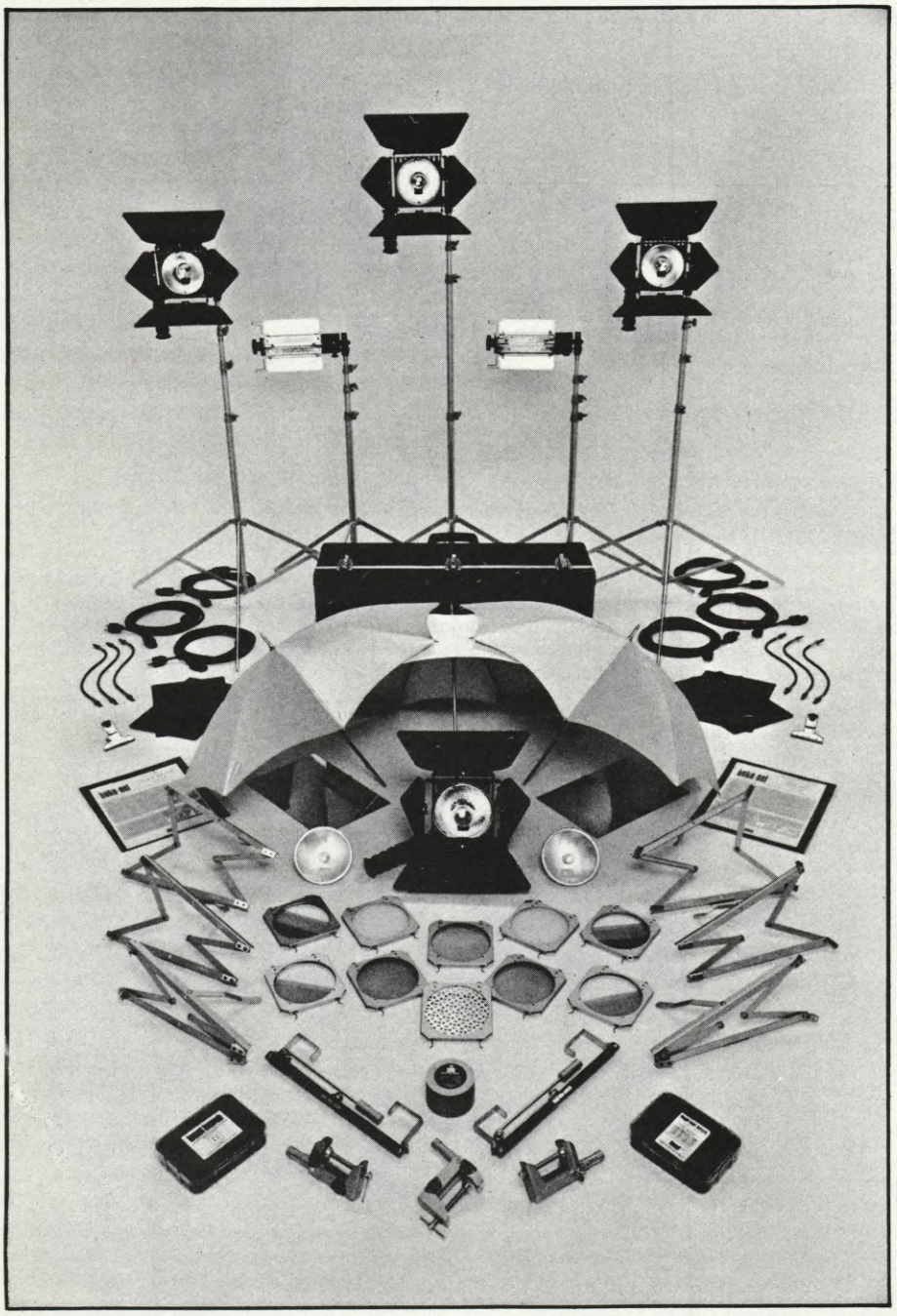
Omni-light is responsive. *Direct drive gives precise, comfortable focusing through the entire range. The unit can be held and focused with one hand for news work.*

Omni-light is rugged. *It is built of durable, lightweight aluminum alloys for years of rough location use. Double wall construction and generous convection cooling ensure maximum life for lamps and internal wiring.*

Technical Specifications

size with doors: 4⅝"x8⅜"x6¼" [11.7x21.3x15.9 cm]
weight less cable: 1.7 lbs. [8 kg]
with 16' cable: 2.6 lbs. [1.2 kg]
max. wattage: 650w at 120 & 220/240v
max. amperage: 8.3 at 30v
beam control: continuously variable
tilt angle: 275° with doors, 360° without
tilt system: constant tension (torque)
fits on: ⅝" [16 mm] and smaller studs
materials: primarily aluminum alloy
cable, 120/240v: 16' #18/3 wire
cable, 30v: 5' #18/3, Amphenol connector
switch: in line
U.S. Patent: pending

For more information about Omni-lights, Omni-kits, and the entire Lowel location lighting line, contact Lowel-Light Mfg., Inc., 421 West 54 St., New York, N.Y. 10019, West Coast: Lowel-Light Mfg., Inc., 3407 W. Olive Ave., Burbank, Calif. 91505, or an authorized Lowel equipment dealer. ■



solo kit

kit code: 01-96

specifications
size: 28" ×17½" ×8¾" [72×44×22 cm]
weight: 58 lbs. [26.4 kg]
materials: rugged, high density polyethelene
compartments: see "customizing"

contents
4 omni-lights with #1 reflectors, 16' cables (less lamps) 01-10
2 tota-lights, 16' cables (less lamps) T1-10
2 #3 super-spot reflectors 01-17
4 barndoors—complete 01-20
2 diffused safety glass 01-50
3 full scrims 01-54
2 half scrims 01-55
2 graduated scrims 01-56
1 cookaloris 01-57
3 tota-brellas T1-25
6 tota-frames T1-20
1 package day blue gels T1-70
1 package frost gels T1-72
1 package assorted gels T1-78
4 tota-flags T1-52
2 tota-flectors T1-54
6 flexi-shafts—16" (3) T1-50
2 tota-tatches T1-34
5 omni-stands 01-33
2 tota-mounts T1-32
1 gaffer-tape, 12 yds. GT-12
3 tota-clamps T1-30
1 omni-lampak 01-61
1 tota-lampak T1-61
1 tota-packet 01-65
1 case 01-86

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STRAIGHT TALK ABOUT LENSES

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"C" MOUNT

ECLAIR CA-1

STANDARD ARRI

CP-16R

ARRI S/B LOCK TYPE

BOLEX RX

AND HAVE US INSTALL IT ON YOUR LENS.

All mounts are precision manufactured of the finest materials available to original factory tolerances. Our skilled technicians can perform most modifications within one week. Prices vary with lens type and the mount desired. Call or write today for a quotation.

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SYSTEM-TON SOUND EDITOR
Continued from Page 1177

impulse comparison, electric start and stop, howl suppression for start and stop, autofeed and autoreject of cassettes, auto cue location using 3-digit electronic counter, separate control of eraser and recording heads, heavy-duty 4-channel recording heads, superior to DIN hi-fi standard 45500, dynamic noise limiter (DNL), manual sensitivity control with duplex VU meter, erase-blocking override, balance control, automatic fade, standardized sockets for tape, phono, micro, 5-channel mixer with level presetting, separate bass/trebel controls, adjustable fade level automation, monitor amplifier 2 x 6 W solidus 4-8 Ohm, 2 internal loudspeakers (OFF possible) sockets for external speakers/ headphones, detachable numeral-input keyboard, programmable control electronics for tape recorder and mixer, 4-digit electronic display with intermediate store—selection of display: seconds, frames and scene numbers, motor-driven memory strip (endless loop) for 27 notes, checklist holder in lid, LED guide, optimum layout of controls, highly integrated TTL/MOS technology, power supply: 220 V, 50 Hz—120 W (110 V, 60 Hz also available) aluminium casing with hard-wearing surface in orange or dark green, front black, 500 mm wide, 240 mm high, 350 mm deep, 16.2 kg in weight, subject to technical modifications.

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Arrangements as to availability and other details are to be made directly with the individual A.S.C. member. For further information, contact: American Society of Cinematographers, P.O. Box 2230, Hollywood, California 90028. Telephone: (213) 876-5080.

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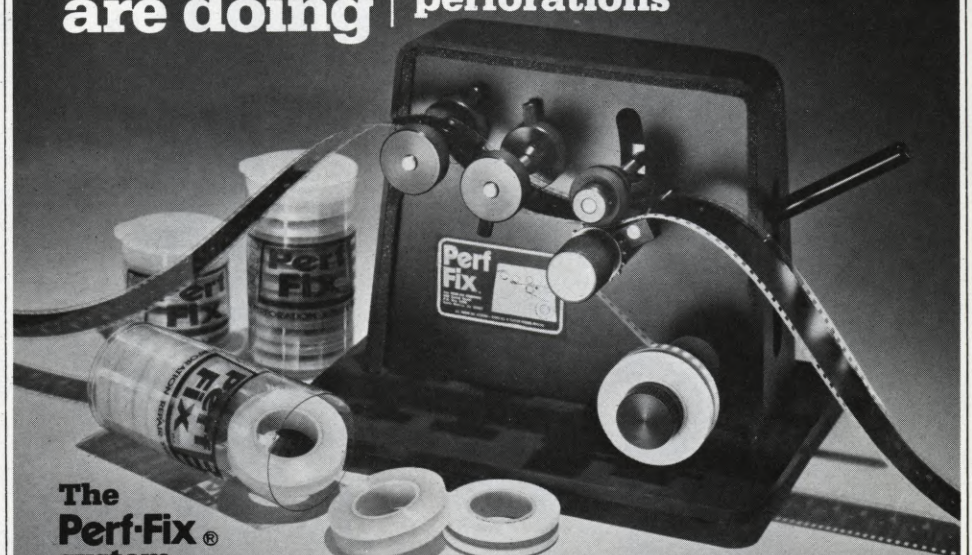

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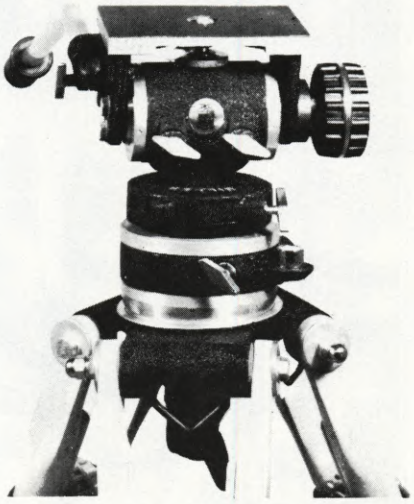

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CINEMA WORKSHOP
Continued from Page 1158

B—Stellavox Stereo tape reproduced on a mono system: 60Hz (50Hz) pilot signal reproduced clearly in the audio.

C—Mono sync tape reproduced on any stereo machine: 60Hz (50Hz) pilot signal reproduced clearly in the audio.

In addition to the pollution of the audio tracks, it should be obvious in the above examples that resolving is impossible. Moreover, a Nagra stereo tape cannot be resolved on a Stellavox and vice versa, although the audio tracks will remain relatively clean.

It appears that these various formats will be coexisting for quite some time to come. Good practice should include careful labeling of tapes, as well as prearrangements with transfer studios to assure compatibility.

If it is any consolation, the three aforementioned formats are relatively compatible if no sync signals are recorded. ■

LTM LUXARC 4000 HMI LIGHT
Continued from Page 1210

EXTENSION CABLE; ballast-head, 15 m., TITANEX type, 19-conductors of 1.5 mm^2
Note: in this case a connection box must be used
STAND: type 5403, wind-up stand
WEIGHTS: LUXARC 4000: 30 kg
ALIMARC 120V: 81 kg (incorporated transf.)
ALIMARC 220V: 44 kg (separate transf.)
AT 5000: 28 kg
ALIMARC 220V: 70 kg (incorporated transf.)
ALIMARC 380V: 45 kg
This light uses HMI discharge lamps, type 4000 W—6000°K

Accessories:
210-520 four-leaf barndoor
210-530 filterholder
210-550 double diffuser, stainless steel
210-560 single diffuser, stainless steel
5403 wind-up stand
S111 C-clamp for spigot dia. 28.57

All Luxarc units produce light at 5600° Kelvin (daylight), Mills concluded. "They have the advantages of low power consumption, great handiness and important light output.

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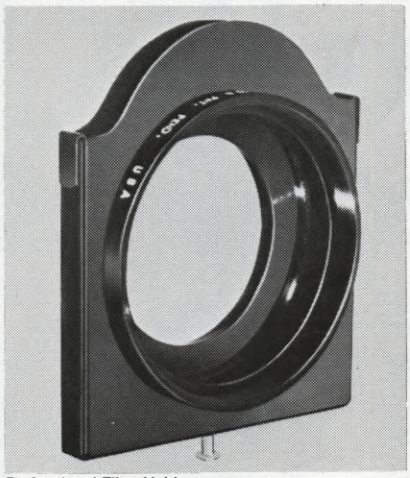
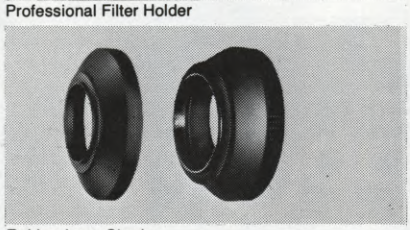
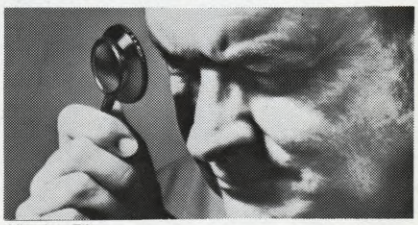
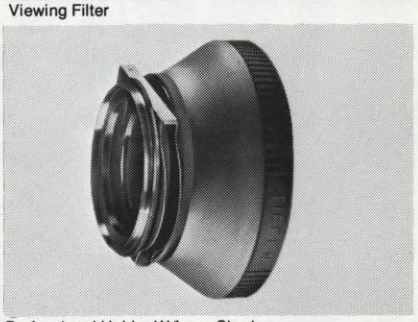
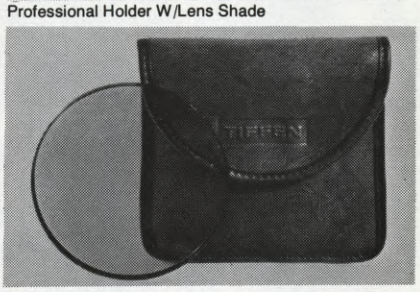

Professional Filter Holder


Rubber Lens Shade


Viewing Filter


Professional Holder W/Lens Shade



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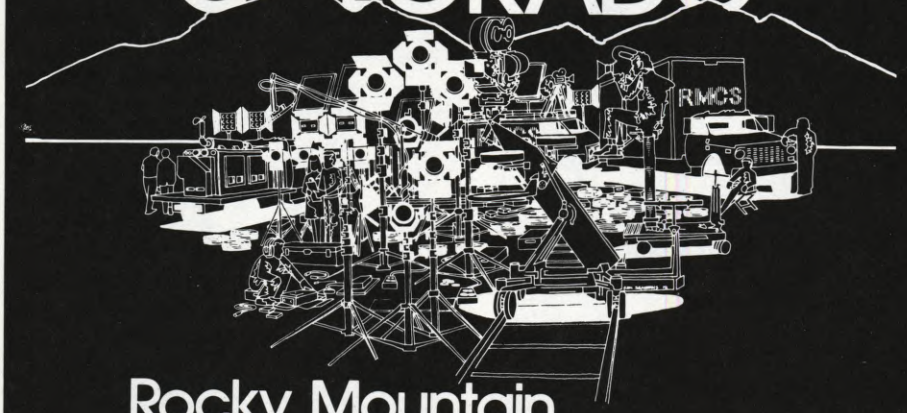

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HMI/TUNGSTEN LIGHTS

Continued from Page 1194

a foolproof strain relief. All of the internal wiring is accomplished with strong connective mechanisms which do not require soldering. The yoke is so designed as to permit quick balancing of the light when accessories, barndoors, etc., are added or removed.

The basic construction is modular and the entire firing circuit is removable without the use of tools, so that it can be replaced by another unit within minutes. Any necessary repair work to the electrical system can be done away from the luminaire. Thus, the replacement modules permit uninterrupted use of the luminaire.

One of the unique features of the series is that Ryudensha also supplies a tungsten-halogen insert which can replace the HMI insert, thus permitting the same luminaire to be converted to tungsten use or back again within minutes. The tungsten insert permits the use of 1KW, 2KW, 5KW or 10KW lamps.

All of the luminaires come in either manual or pole-operated versions. All that is required to make the switch is to change the yoke.

FEATURES

- By simply changing the insert unit (HMI or Tungsten), the same light housing can be used as a daylight type light or tungsten light.
- The provision to move the yoke along a grooved aluminum channel makes the light easy to keep well balanced.
- Many of the new lighting units can be stacked vertically by means of specially designed "plug-in" legs and one-touch spring clamps. This offers convenience for transportation to locations and storage of the units.
- A safety switch instantly cuts power when the insert unit is pulled out to access the lamp for replacement or necessary maintenance.

PERFORMANCE CHARACTERISTICS

HMI-575W Lamp:		
Illuminometer Distance:	3 m	
Lens Type:	Diameter	202 mm
	Focal Length	115 mm
Spot:	3,700 Lux	
Flood:	700 Lux	
	Spot	Flood
Beam Angle	11° (0.6 m°)	40° (2.2 m°)
Field Angle:	28° (1.5 m°)	6.2° (3.6 m°)
HMI-1200W Lamp:		
Illuminometer Distance:	6 m	
Lens Type:	Diameter	252 mm
	Focal Length	145 mm
Spot:	22,000 Lux	
Flood:	1,800 Lux	
	Spot	Flood

Beam Angle:	6° (0.6 m°)	36° (3.2 m°)
Field Angle:	12° (1.2 m°)	58° (6.6 m°)
HMI-2500W Lamp:		
Illuminometer Distance:	6 m	
Lens Type:	Diameter	302 mm
	Focal Length	215 mm

For further information, contact: Ryudensha Co., Ltd., 7-2, 4-chome, Shimbashi, Minato-ku, Tokyo, Japan; Telephone Number: (436) 3033; Cable Address: "RYULIGHT TOKYO" Telex: J24509; RDS-Lichttechnik GMBH Cosimastr. 296, 8 München 81 West Germany. ■

Super8 CASSETTE RECORDERS
Continued from Page 1211

market. The Super8 Sound Cassette Recorder I is based on the Superscope C-190 Cassette Recorder.

Sync Operation

Super8 Sound has modified the C-190 to include both 1/F cable sync and (by means of an internal crystal oscillator) cable-less crystal sync.

Cable Sync: More than 40 Super-8 cameras can be used with the Super8 Sound Cassette Recorder I without camera modification for sync. A cable connects the camera's PC (1/F electronic flash socket) to the Super8 Sound Cassette Recorder I. The 1/F sync pulses are recorded on the cassette tape alongside the audio in perfect frame-to-frame relationship. An LED indicates proper sync cable connection.

Crystal Sync: When filming with Super8 Sound crystal controlled cameras, the Super8 Sound Cassette Recorder I may be used in the crystal sync mode. A built-in crystal oscillator provides the sync reference that is recorded alongside the audio track. Accuracy is ± 1 frame per 13 minutes continuous running. An LED indicates crystal function. By using both a crystal controlled Super-8 camera and the Super8 Sound Cassette Recorder I set to crystal, the necessity of a sync cable between camera and recorder is eliminated.

Other Features: Automatic or manual level control, separate record and playback pots, record level limiter, VU meter, high speed cue and review, pause control, tape counter, built in AC adapter and variable speed control.

Availability

Both of the new recorders described above are available from Super8 Sound's international network of professional Super-8 dealers, through the Super8 Sound Consultant Program, or directly from Super8 Sound, Inc., Cambridge, MA, U.S.A. ■

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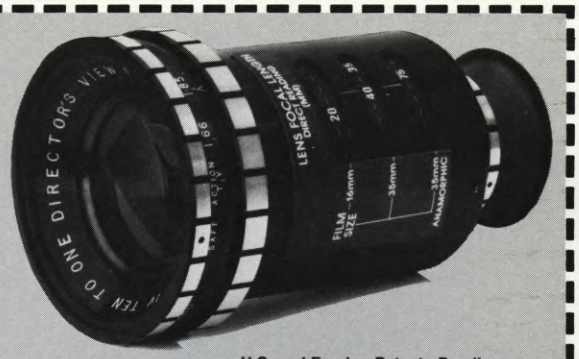

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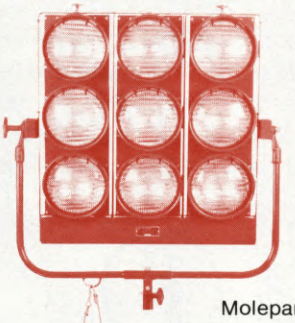

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BAUER MICROCOMPUTER CAMERA

Continued from Page 1202

individually "tailoring" the camera to the user.

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The Bauer S 715 XL comes complete with standard microphone with switch, wind shield, wrist carrying loop, lens hood, electric remote release cable, phono adapter, three different eyepiece cups, integrated and adjustable shoulder stock, headphones and camera case. ■

FEATURES OF THE BAUER S 715 XL MICROCOMPUTER CAMERA

Lens	Angénieux Zoom-Macro f 1.4/6-90 multicoated (x 15)
Filter thread	M72x0.75
Shortest filming distance	0.80 m
Smallest framing size with macro (mm)	32 x 24
Focusing Quick-shot setting 'green light'	split-image X
Zoom automatic	2 speed
Viewfinder indication exposure, sound, film running, end-of-film	X
Viewfinder indication Daylight filter	X
Viewfinder eyepiece, adjustable	X
Brow rest	variable
Eyepiece cup (rotatable/exchangeable)	X
Eyepiece cover	X
XL open sector	200°
Fully automatic TTL exposure meter (light measurement through lens) with measurement value amplifier	X
Manual aperture	X
Back-light button	X
Automatic fade-in fade-out control for picture and sound	X
Automatic fade-over control for picture and sound	X
For 15/17-21/23 DIN films	X
Film counter	with Memo
Film type indicator	X
Daylight filter	X
Frame frequency settings on silent operation	9,18,24 f.p.s.
Frame frequency settings on sound operation	9,18,24 f.p.s.

Automatic slow motion control 40 f.p.s. Silent cassettes:	X
Single frame facility silent & sound cassettes	X
Automatic interval timer Silent & sound cassettes:	1 f.p.s. –240 f.p.s.
Automatic titling control 1, 2, 3, 4, frames per release Silent & sound cassettes:	X
Automatic scene length control 6, 8, 10 secs.	X
Automatic release (10 sec) can be coupled with auto scene length	X
Central power supply from 1.5 V AA batteries NiCd storage battery op. possible (see Original Bauer accessories)	6 X
Main switch for power supply in release	X
Battery tester with indicator	Voltmeter
Electromagnetic release	X
Remote control connection	X
Action Light LED	X
Flash contact	X
Automatic recording level control with infinitely variable sensitivity	X
Manual recording level control with indicating instrument	X
Monitoring before and during recording	X
Phono connection for playback recordings	via adapter
Lockable folding grip	X
Adjustable shoulder stock	X
Thread for directional microphone	X
Tripod thread	X
Sep. thread for filming light	
Microphone with remote release	X
Headphones	X
Camera case, wrist carrying loop,	X
Electric cable release, phono adapter	X
Slide titling adapter	
Dimensions: Length (grip folded) Width Height	288 mm 73 mm 145 mm
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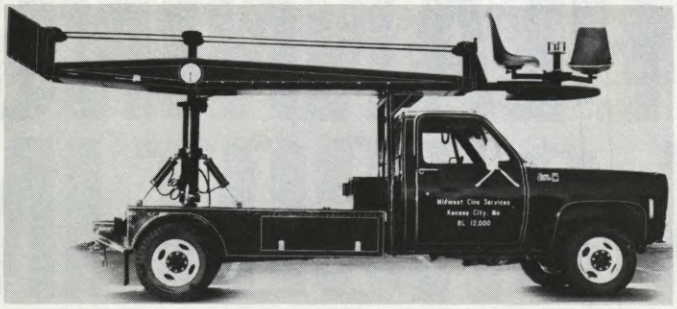

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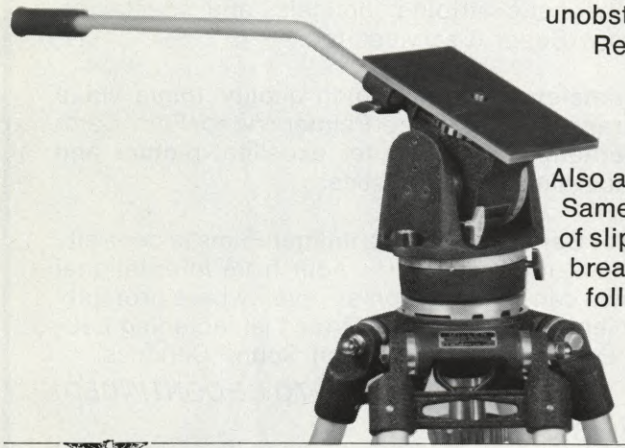
This leveling unit features a tight, quick-locking device for fast pressurized contact with the top casting on the tripod legs. This promotes more efficient, unobstructed filming mobility. Recommended maximum load: 50 lbs.
Weight: 9 lbs.
Height: 6½ inches.



Also available, Model VGS50. Same as VG50 with addition of slip pan unit which allows breakaway pans in order to follow fast action, such as sporting and racing events.

Miller Professional Equipment
10816 Burbank Blvd. / No. Hollywood, CA 91601
Phone (213) 466-5105

NEW FROM STEENBECK
Continued from Page 1217

a digital basis requiring no adjustment in the driving system. This system facilitates interlock between the sound unit and the editing table as well as transferring and/or controlling by a pilot frequency delivered by a standard 6.35mm tape recorder (e.g. Nagra). As master or dislocked the speed is crystal-controlled. The sound system of this unit is equipped with high quality magnetic sound heads for erasing, recording and reproduction, thus also making separate head monitoring feasible. Control has been devised so that start and stop can be effected true-to-frame. In addition the unit is equipped with a monitoring facility operating via the recording head and, in connection with a trick key, recording at any position of the sound track is possible. The ST 1 is equipped with standardized recording and reproduction amplifiers, being a one-channel unit in standard embodiment, and can, upon request, also be supplied as a two-channel unit and provided with pilot sound amplifier. Transferring from IRT-EBU time code is possible. For recording purposes any mixing or control desk can be used. For reproduction any main amplifier, having a standardized input level, can be used.

In its delivery program the W. Steenbeck Company offers electronic counters of various designs. The program range comprises the high-quality key-operated counter Z 2001 on which all conventional and commonly used film and counting modes can be selected by simple keyboard selection. Another item offered is the compact-casing counter Z 2007 provided with program circuit board plugs for all modes of counting. Here the last counting is stored and memorized for a period of up to 16 hours by means of a built-in buffer battery. The Z 2008 unit, also a built-in model, operates similarly. Another innovation is the Z 2009 offered as a low-cost single unit counter which can be pre-programmed at the factory for any desired mode of counting. ■

NEW FROM ARNOLD & RICHTER
Continued from Page 1215

forward-reverse operation via accessories.

Magazines

60 m magazine for forward operation and 150 m magazine for forward and reverse, identical with the ARRIFLEX 35 II C version.

Extensive accessories

By identical mounting dimensions, the bridge plate, in conjunction with the adapter plate, enables the use of the extensive range of accessories for the ARRIFLEX 35 BL, e.g., the 6.6″x6.6″ production matte box, the supports for heavy lenses with fixed and variable focal lengths, the

holders for hydro and servo lens drives.

Additional accessories:
Production matte box 4", light-weight matte box 3", finderscope extension tube, shoulderpod, carrying handle and handgrip.

In preparation:
300 m magazine of light-weight construction, 150 m shoulder magazine for hand-held filming, TV adaptation, focusing device and EBU Time Code Module.

Technical data:

Film format:
35 mm

Lens mount:
Suitable for all 35 mm ARRIFLEX lenses.

Film movement:
Single claw pulldown with registration pin, cam as tuated.

Magazines:
60 m magazine, for forward operation, identical with A 35 II C version,
150 m magazine, for forward and reverse, identical with A 35 II C version.

Mirror reflex viewfinder system:
With fixed or pivoting finder. Mirror reflex shutter opening 180°.

Frequency output for external pilotone connection

Operating voltage:
12 V for 6– 50 fps
24 V for 6–100 fps via HSU accessory.

DC motor:
With ironless armature.

Current consumption:
At 24/25 fps approx. 2.5 A.

Frame rates:
Quartz 24/25 fps
Variable 6– 50 fps, built-in.
Variable 6–100 fps via HSU.

Electric counter:
With meter or footage indicator.

Eletronic speed indication

Out-of-synch warning:
Visible in viewfinder.

Forward and reverse operation (external)

Shutter standstill circuit

Temperature range:
+55°C to –25°C

Weight:
of camera ready for operation (without film):
with 60 m magazine 5.7 kg
with 150 m magazine 6.5 kg

Dimensions:
(with 60 m magazine and fixed viewfinder):
Length (without lens): 285 mm
Width: 143 mm
Height: 275 mm ■

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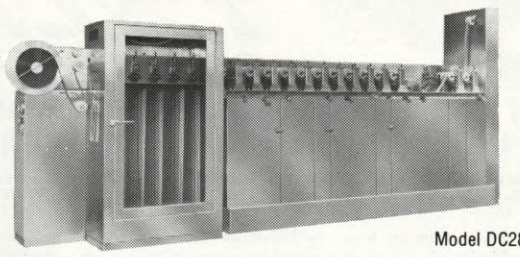

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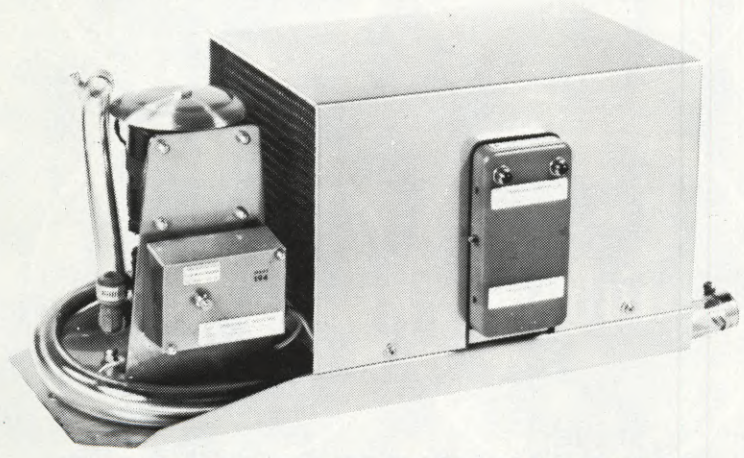


FRIGIDHEAT INDUSTRIES

BOX 40947, NASHVILLE, TENN. 37204 / (615) 383-4255

"GSMO" CAMERA SOON TO BE AVAILABLE

Continued from Page 1183

Aperture Opening: 7.46mm × 10.41mm (0.294" × 0.410")

Viewfinder (standard): Positive lock, 12× magnification. Provides greater than full-field viewing through fiber optics viewing screen. (Orientable viewfinder system *optional.*)

Warning Indicators in Viewfinder: When illuminated, "S" indicates camera speed is not at pre-selected speed level, or "out of sync." "B" indicates low battery.

Lens Mount: CP bayonet mount, with a positive locking ring. Accepts any reflex type lens that fits on any of the existing Arriflex and Eclair cameras (with proper CP mount adapter).

Dimensions:

GSMO camera with 30m (100′) magazine: 12.9cm wide × 11.8cm high × 19.3cm long (5.06" × 4.63" × 7.61")

GSMO camera with 60m (200′) magazine: 12.9cm wide × 14.2cm high × 24.3cm long (5.06" × 5.60" × 9.56")

GSMO camera with 120m (400′) magazine: 12.9cm wide × 18.3cm high × 30.8cm long (5.06" × 7.18" × 12.12")

Weights:

GSMO camera head *only,* with CP standard 12× viewfinder and NC-4 battery pack, *less lens:* 2.4kg (5 lbs. 6 oz.)

Magazine weights *(fully loaded with film):*

30m (100′) magazine: 1.0kg (2 lbs. 2½ oz.)

60m (200′) magazine: 1.6kg (3 lbs. 10 oz.)

120m (400′) magazine: 2.5kg (5 lbs. 8 oz.)

Power Supply: The GSMO is powered by the standard CP NC-4 nicad plug-in battery pack, which can drive 450-500 meters (up to 1600′) of film through the camera on one charge. All power supplies compatible with CP-16 and CP-16R cameras may be used to power the GSMO camera.

Tripod Sockets: ¼"-20 and ⅜"-16 tripod mount sockets.

Options and Accessories: CP semi-automatic exposure control system (with LED exposure indicators in viewfinder); CP orientable viewfinder system; J-5 zoom control system; remote speed control to provide continuously variable speeds in the range of 12-64 fps; adjustable handgrips, shoulder pods and braces, etc.

For further information, contact: Cinema Products Corp., 2037 Granville Ave., Los Angeles, CA 90025. Tel: (213) 478-0711 or (213) 477-1971. ■

START, STOP and synchronization pulse marks.

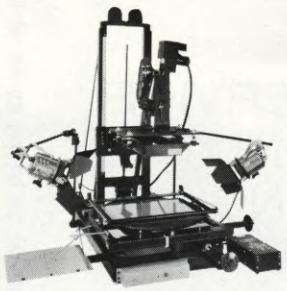
At the Lowel-Light stand I encounter several old friends, including the boss-man himself. Ross Lowell. An outstanding cinematographer, his pleasantly low-key personality is certainly at odds with the genius he has displayed over the years in almost single-handedly revolutionizing location lighting. Spurred on by his own needs as a cameraman for extremely compact, lightweight, versatile and ruggedly dependable lighting equipment suitable for shooting in tight places, he has created a superb line of unique, impeccably crafted, miniaturized luminaires (with modular support accessories) that permit cameramen to shoot in literally any interior, no matter how cramped. His latest triumph is the highly versatile OMNI-LIGHT (previewed in prototype at *PHOTOKINA '76*) which comes as close as possible to being a unit applicable to almost every lighting situation.

Here at *PHOTOKINA '78* his company is introducing four new kits which pack incredible amounts of lighting equipment into compact, lightweight, easily portable packages.

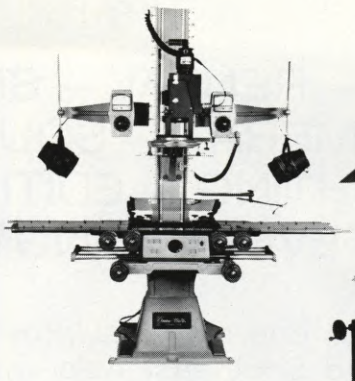
Tucked away in his cozy booth in Hall 12, a bit removed from the mainstream of traffic, I encounter another old friend, the brilliant cinematographer/lecturer/engineer/camera designer, Ken Richter. At *PHOTOKINA '76* we scooped the world (prematurely, as it turned out) by reporting on the prototype of the incredibly tiny MPE (Minimum Possible Envelope) 16mm sync-sound camera which this modern-day Renaissance Man had designed. He was deluged with inquiries and not a few orders, but, perfectionist that he is, he elected to spend the ensuing two years bringing his design to its optimum level of development. Now, he happily reports, he's ready. The camera (currently retitled the EMP, for "Envelope: Minimum Possible") is actually being manufactured in his plant at Essex, New York.

I spend the following several days at *PHOTOKINA* carefully examining every item I feel may possibly be of interest to *American Cinematographer* readers and, while there are few "blockbusters", there are quite a few intriguing bits and pieces among the displayed items and accessories that would appear to be worthwhile. Space limitations preclude reporting on all of them at this time, but we shall endeavor to cover as many as possible in upcoming issues. ■

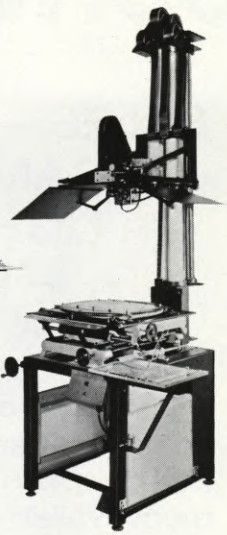
Meet the FAX FAMILY



'JR.' THRIFTFAX CAMERA STAND

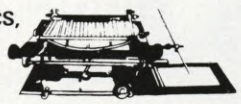


FAX-RICHARDSON CAMERA STAND



THRIFTFAX CAMERA STAND

ANIMATOR'S DISCS, COMPOUNDS



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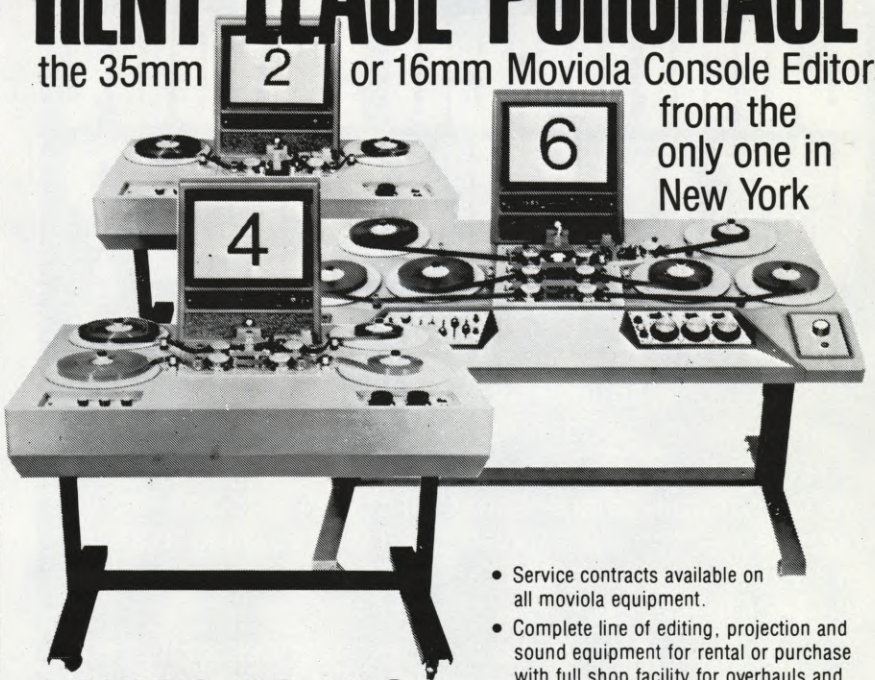

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PROFESSIONAL SUPER-8
Continued from Page 1223

full compatibility with all existing Electret modules.

Shotgun Module ME88: This true shotgun microphone has been specifically designed for filmmaking use. It is light (56gms) and 58cm long. This incredible light weight includes a windscreen covering the entire length of the module. It is extremely directional, frequencies below 100Hz are rolled off to reduce handling and camera noise, and it can be mounted (with accessory mount) on most cameras.

Mikromike MKE 10: This microphone is extremely small and suitable for concealment under clothing etc., during filming. It is now available in two versions: one with a miniature power supply and on/off switch attached or with the proper connector for use with the existing Electret powering module K1, K2 or K3.

Powering Module K3: This new powering module for the Electret series Sennheiser microphones is a welcome addition. The K3 module will replace both the K1 and K2 modules. Its major improvement has been the addition of a two-step bass attenuator. (In the past you had to hook up the MZF 802 filter). This built-in filter is absolutely necessary for film work where the microphone may be camera mounted, hand-held or boom mounted. Depending on need, most of the disturbing vibrations, handling noises, or camera body noises etc., can be effectively suppressed.

Availability of the new components is estimated for December 1978. Prices will be comparable to existing Electret modules.

MKM INDUSTRIES

The only American-made professional Super-8 editing table on display was the well-known MKM four-plate horizontal editing table.

The MKM Editing Table is a 4-plate (one Super-8 picture and one Super-8 fullcoat track) electronically controlled horizontal editing machine operating on principles similar to 16mm flatbeds. Features include: 800-ft. reel capacity; an original picture head design incorporating an 8-sided prism, a 21V/150W projection lamp and a large (3.75x5 inch) bright groundglass viewing screen; variable speed control from 1-70fps forward and reverse; manual inching; 24fps sync speed with interlocking capability to AC sync fullcoat recorders; flywheel stabilized sound transport for the magnetic film track; solid state amplifier and built-in speaker; declutching switches for independent transport of sound and picture; independent torque motors with

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Hasselblad to Arriflex Bayonet
Hasselblad to Mitchell S35
Hasselblad to BNCR
Nikon to Bolex Bayonet
Pentax to Bolex Bayonet
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Mitchell S35R to BNCR

LENS MOUNTS

* Arriflex Bayonet Mounts for Angenieux 16mm Zooms
* Arriflex Standard Mounts for Angenieux 16mm Zooms
* Arriflex Bayonet Mount for Zeiss 16mm Zooms
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* Arriflex Bayonet Mount for Zeiss — Prime lens 8mm distagone (16mm format lens)
* Arriflex Bayonet Mount for Zeiss 16mm Distagone (35mm format lens)
* Arriflex Bayonet Mounts for H/S Kowa (16mm lenses)
* Arriflex Bayonet Mount for 10mm Schneider lens (16mm format)
* Arriflex Bayonet Mount for 9.8 Tegea Kinoptic
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CP16R Mount for Angenieux 5.9mm
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cut-off switches; large LED displayed frame counter. Single-system sound and a console option are also available.

U.S. price of the basic table is $3000. MKM is distributed in the U.S. by Super8 Sound, Inc. and overseas by Cinecraft International.

SCHMIDT

Schmidt, a German firm well known for its 16mm editing tables, has introduced a very interesting Super-8 post-production console. That is, the AMV-6 is not only an editing table, but is also capable of sound mixing and transfer.

The AMV-6 is a six-plate flatbed accepting one Super-8 picture and two Super-8 fullcoat sound tracks. Its mixing, recording and transfer functions include: transferring sound from single-system sound film to fullcoat for double system editing; transferring sound from fullcoat to either (or both) the balance stripe and the main sound stripe of the picture; recording and playback of two channels of sound on either fullcoat track (this means that a four-track sync mix could be done directly on this table); mixing directly to the film sound stripe or to a master fullcoat track. The AMV-6 has a built-in six-channel mixing board with equalization, numerous outputs and inputs (including a 1/F socket for interlock with a fullcoat recorder) and 17W amplifier. This table is not available in the U.S., but its cost in Germany is slated between $5000 and $6000.

CIR

CIR introduced a superb new professional tape splicer for Super-8. Along with the splicer, they released a newly formulated splicing tape (with a pink tab) said never to bleed adhesive and to resist stretching at the splice point.

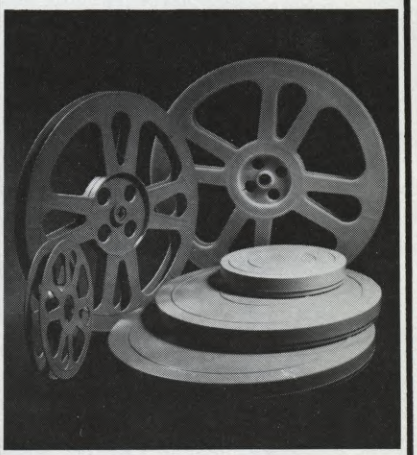
For the Super-8 filmmaker editing double-system sound film, this splicer meets some important needs. It splices on only one side, thus permitting easy remaking of splicing during editing. If desired, the film can be turned around and the other side spliced as well. The splicer makes a very tight four-frame splice. For the cutting of Super-8 magnetic film (fullcoat), there is a special diagonal cutter. The same splicing tape is used for both film and fullcoat.

The CIR Super-8 Professional Tape Splicer is distributed in the U.S. by J&R Film Co. Cost is estimated at approximately $250.

SONY

An unexpected entry into the Super-8 field was Sony with their VEP-1000 Super-8 to Video transfer system. Those of us who observed the quality of the

REELS. CANS. CASES.



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video produced from Super-8 by the VEP-1000 judged it to be as good as anything we had seen done in the U.S., regardless of the transfer system.

The primary new component of the transfer system is the Sony-designed telecine projector for Super-8, which is capable of running at any speed from 2 to 48fps (also fixed at 18 and 24fps) and single frame. In fact, the projector can also run in reverse during a transfer. Except for the Kodak Videoplayer (running at 18 and 24fps), no other projector is capable of video transfer at other than 24fps. Sony has adapted the DXC-1610 color camera to work with the VEP-1000.

The Sony Super-8 Video system is also fitted with a sync contact switch for double-system sound transfers. The system is delivered with a remote control/programming unit. Cost in the U.S. will be approximately $10,000.

According to the Sony spokesman, this VEP-1000 system is not being introduced in order to open a new market for Sony. On the contrary, it was designed to boost the Betamax home video recorder market. Sony figured that if a home moviemaker could transfer his Super-8 films to video cheaply and with good quality, another obstacle to owning a Betamax would be removed. The transfer unit will probably be leased to video dealers. ■

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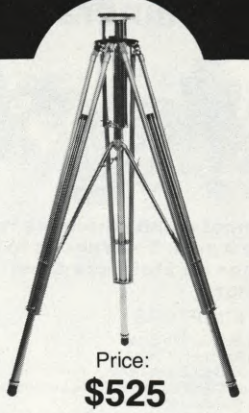

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The Foba all-metal professional motion picture tripod features a Pro Jr. flat-top plate which accepts Pro Jr., O'Conner C and 50, Miller F and Pro heads. Foba's unique tubular adjustable legs allow the tripod to be used in both standard and baby positions. Legs can be adjusted individually or simultaneously. Tripod comes complete with triangle-type leg locks and elevating riser plate. Foba was selected for use in filming the 21st Olympiad.

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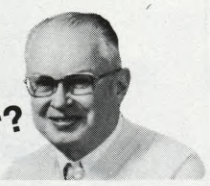

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INDEX TO AMERICAN CINEMATOGRAPHER

Volume 59, 1978

INDEX BY TITLE OR SUBJECT

—A—

Academy Scientific or Technical Awards, May, 458
Acousonic Recording Process Makes Its Debut, Nov, 1082
Advertising: A Permanent Value, Mar, 288
American Film Institute Seminar with Gerald Hirschfeld, ASC, An,—Part 1, Jun, 574; Part 2, Jul, 678
American Film Institute Seminar with Gordon Willis, ASC, An, Part 1, Sep, 872; Part 2, Oct, 978
American Film Institute Seminar with Ralph Woolsey, ASC, An, Part 1, Feb, 156; Part 2, Mar, 256
American Film Institute Seminar with Ted Voigtlander, ASC, An, Apr, 364
American Society of Cinematographers Film Student Symposium, The, Mar, 276
American Society of Cinematographers Honors Edgar Bergen, Jun, 566
Awards of the VIth Tehran International Film Festival, Feb, 192

—B—

Bauer S 715 XL Microcomputer Super-8 Sound Camera, Dec, 1202
Beach and Jungle Filming in Malaysia, Jun, 596
Behind the Camera on "JAWS 2", Apr, 356
Behind the Scenes of "BIG WEDNESDAY", Jun, 552
Behind the Scenes of "CLOSE ENCOUNTERS OF THE THIRD KIND", Jan, 26
Behind the Scenes of "GREASE", Aug, 756
Behind the Scenes of "JULIA", Mar, 244
Behind the Scenes of "THE DEER HUNTER", Oct, 960
Behind the Scenes of "THE WIZ", Nov, 1068

—C—

"Cement Mixer" Underwater Rig for Filming "JAWS 2", The, Apr, 359
Cinema In Depth—From Hollywood to Super-8 3-D, The, May, 474
Cinema Products' New "Upright/Flatbed" Editing Console, Dec, 1174
Cinema Workshop: Camera Shutters, II, Feb, 128; Electret Condenser Microphone, Jul, 634; Film Formats, Sep, 850; Hand Microphones, Aug, 746; Lenses—Arriflex 16BL and 16SR, Jun, 542; Lens Mounts, May, 442; Lighting for Television, Oct, 950; Pilotone, Dec, 1158; Shutters, Jan, 8; Shutters III, Mar, 234; Shutters IV, Apr, 342
Creating the Photographic Special Effects for "CLOSE ENCOUNTERS OF THE THIRD KIND", Jan, 72

—D—

Designing a World for UFOs, Extraterrestrials and Mere Mortals, Jan, 34
Dialogue with a Plasticine Sculptimator, Apr, 394

—E—

EMP (Envelope: Minimum Possible) 16mm Sound Camera, Dec, 1206
Editing Motion Picture Sound Tracks Using Ordinary 1/4" Magnetic Tape, Jul, 674
Eleventh Motion Picture Seminar of the Northwest, The, Aug, 768

—F—

Fiftieth Anniversary Academy Awards Presentation, May, 452
Filming along the Susitna: Kayaking's Everest, Sep, 902
Filming "HUICHOLE: PEOPLE OF PEYOTE", Feb, 146
Filming in Colorado of "IT WAS NEVER IN THE MUSIC BOX", Oct, 1008
Filming of "JORDAN: PAST AND PRESENT", The, Mar, 292
Filming of "STOCKCAR!", The, Aug, 798
Filming Ten Hours of "WHEELS" for NBC

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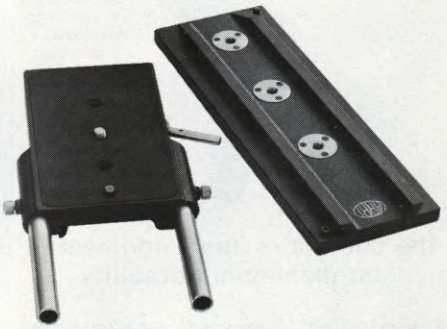

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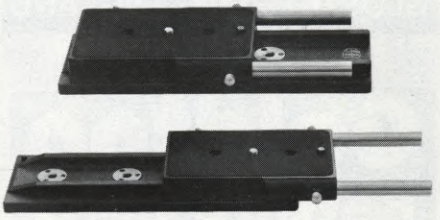

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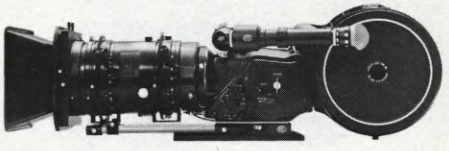

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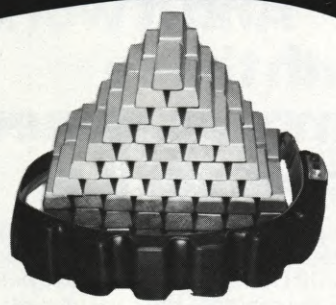

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Television, May, 496
Film Still a Strong Medium, Says Kodak at Seminar, Apr, 374
Film World Mourns Lee Garmes, ASC, The, Nov, 1094
Five Best Photographed Films of 1977, The, May 464
Five New Lights from Quartzcolor Ianiro, Dec, 1178
Following the Yellow Brick Road from "THE WONDERFUL WIZARD OF OZ" to "THE WIZ", Nov, 1090
From the Producers' Point of View, Jan, 48

—G—

"GSMO" 16mm Sound Camera to be Available Soon, Dec, 1182

—H—

HMI/Tungsten Universal Type Fresnel Spot Light Series, Dec, 1194
Half-Century with "Oscar", A, May, 460

—I—

"Is There a Doctor in the Optical House?", Sep, 888

—J—

John Milius "Hangs Ten" on Film, Jun, 554

—L—

LTM America Introduces New Luxarc 4000 HMI Light, Dec, 1210
Lee 200-Watt Strobe-free Portable HMI Light, The, Dec, 1190
Lens Data Programing with a Hand Calculator, Apr, 360
Life in a Pink Panther Factory, Jul, 670
Lightflex: A whole New World of Color on the Screen, Nov, 1086
Lights! Camera! Action! for "CE3K", Jan, 30
Lowel Introduces Four New Omni-Light Location Lighting Kits at *Photokina,* Dec, 1186

—M—

Magical Matte Paintings for "THE WIZ", Nov, 1078
Making a Super-8 Documentary . . . the Hard Way, Apr, 370
Mind Behind "CLOSE ENCOUNTERS OF THE THIRD KIND", The, Feb, 152
My Close Encounter with "CE3K", Jan, 28

—N—

New Eastman Color Internegative II (5243/7243), Jun, 570
New Editing Equipment from Steenbeck, Dec, 1216
New from Arnold & Richter, Dec, 1170
1980 and Beyond—The Expanding Horizons of Theatrical Features, Aug, 774

—O—

Of Munchkins, Winkies and the Emerald City, Nov, 1074
"OF TIME, TOMBS AND TREASURE": The Editor's Viewpoint, Sep, 866
Of Time, Tombs and Tribulations, Sep, 860
"One-Man Band" as Complete Photojournalist, The, Aug, 778
One-man Film and Sync-sound System, A, Oct, 970
On Location with "REVENGE OF THE PINK PANTHER", Jul, 652
Ordeal by Fire & Ice, Oct, 962

—P—

Photographing "GREASE", Aug, 760
Photographing "NATIONAL VELVET", Jun, 562
Photographing "OF TIME, TOMBS AND TREASURE", Sep, 864
Photographing "REVENGE OF THE PINK PANTHER", Jul, 656
Photographing "THE DEER HUNTER", Oct, 966
Photographing "THE LAST WAVE", Apr, 352
Photographing "THE WIZ", Nov, 1070
Photography of "JULIA", The, Mar, 248
Photography of the Film Called "F.I.S.T." The, Feb, 142
Post-Production Grants Available for Film and Video Tape Projects, May, 470
Professional Super-8 at *Photokina '78,* Dec, 1198
Proposed Electronic Edge Numbering System for Film and Video Tape, A, May, 478

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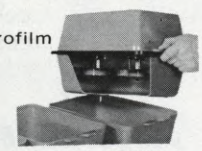

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—R—
Recording Sound Tracks for Adventure Films, Mar, 262
Report from Filmex 1978, Jul, 700
Report from *Photokina 1978,* Dec, 1168
Riding Herd on a Chinese Fire Drill, Jul, 654
Rigging and Lighting a Location Courtroom, Aug, 798

—S—
Sixth Tehran International Film Festival, The, Feb, 186
Sixth Tehran International Film Festival in Retrospect, The, Feb, 193
Shooting a Live Symphony Orchestra Concert, Mar, 264
Shooting a Super L-O-N-G Crawl Title, Mar, 271
Shooting the Tube with Gum and Camera, Jun, 558
Small Film and Tape Spell Success for UHF Station, Mar, 266
Sound of the Story, The, Aug, 782
Sounds of Silence and Things That Go "FLASH" in the Night, The, Jan, 44
Spielberg Speaks about "CLOSE ENCOUNTERS", Jan, 38
Steadicam Inventor Honored by British Society of Cinematographers, Mar, 270
Steadicam Rides Again, The, May 492
Strictly by Design, Jul, 666
Subjective Cameras as Leading Character, The, Mar, 254
Syncing in the Bermuda Triangle, Jun, 592
System-Ton Sound Editing Device, The, Dec, 1172

—T—
Test Case for Professional Super-8, A, Mar, 274
There's More to "Clear Pictures" than Meets the Eye!, Oct, 974
"THE WIZARD OF OZ" and the Golden Era of the American Musical Film, Feb, 190
Three Production Points of View, Jul, 662
Twenty Nights in Clay, Apr, 392
Two New Cassette Recorders from Super8 Sound, Inc., Dec, 1211

—U—
Unique New Exposure Meter that was Custom-designed for the Cinematographer, Sep, 876
Unique New 35mm P.O.V. Helmet Camera System, A, Feb, 160
Unsung Heroes or Credit Where Credit Is Due, The, Jan, 68

—V—
Videotape as Film, Sep, 900

—W—
Water Photography in "BIG WEDNESDAY", The, Jun, 556

INDEX BY AUTHOR

—A—
Adams, Tony: Three Production Points of View, Jul, 662
Alves, Joe: Designing a World for UFOs, Extraterrestrials and Mere Mortals, Jan, 34

—B—
Barragy, Gino: "Cement Mixer" Underwater Rig for Filming "JAWS 2", The, Apr, 359
Becket, Jim: Subjective Camera as Leading Character, The, Mar, 254
Bensinger, Robyn: Shooting "IT WAS NEVER IN THE MUSIC BOX", Oct, 1008
Bolger, Ray: "THE WIZARD OF OZ" and the Golden Era of the American Musical Film, Feb, 190
Boyd, ASC, Russell: Photographing "THE LAST WAVE", Apr. 352
Brown, Roger C.: Filming Along the Susitna: Kayaking's Everest, Sep, 902
Brunel, A.R.P.S., Christopher: "Is There a Doctor in the Optical House?", Sep, 888
Busch, David: "One-Man Band" as Complete Photojournalist, The, Aug, 778
Butler, ASC, Bill: Photographing "GREASE", Aug, 760
Butler, Matt: Proposed Electronic Edge Numbering System for Film and Video Tape, May, 478

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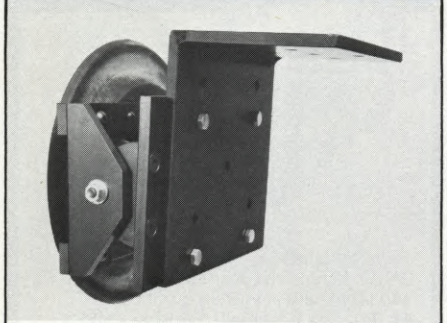

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—C—
Chesterman, Arthur: Recording Sound Tracks for Adventure Films, Mar, 262
Cimino, Michael: Ordeal by Fire and Ice, Oct, 962

—D—
Dreben, Steven R.: Filming "HUICHOLE: PEOPLE OF PEYOTE", Feb, 146
Duncan, ASC, Victor: One-Man Film and Sync-Sound System, A, Oct, 970

—F—
Fellman, Doug: Twenty Nights in Clay, Apr, 392
Fisher, Bob: Magical Matte Paintings for "THE WIZ", Nov, 1078

—G—
Glenn, Bruce Michael: Test Case for Professional Super-8, A, Mar, 274

—H—
Henderson, Scott: Behind the Camera on "JAWS 2", Apr, 356; Behind the Scenes of "THE DEER HUNTER", Oct, 960; Life in a Pink Panther Factory, Jul 670
Hines, William E.: Filming Ten Hours of "WHEELS" for NBC Television, May, 496
Holmstrom, John: Filming of "STOCKCAR!", The, Aug, 798
Hood, George: Dialogue with a Plasticine Sculptimator, Apr, 394
Hoos, Gunther: Professional Super-8 at Photokina '78, Dec, 1198
Horning, Joseph: Shooting a Live Symphony Orchestra Concert, Mar, 264

—K—
Kavanaugh, Derek: Three Production Points of View, Jul, 712
Kovacs, ASC, Laszlo: Photography of the Film Called "F.I.S.T.", The, Feb, 142

—L—
Levin, Lear: Steadicam Rides Again, The, May, 492
Lightman, Herb A.: Eleventh Motion Picture Seminar of the Northwest, The, Aug, 768; 50th Anniversary Academy Awards Presentation, The, May, 452; My Close Encounter with "CE3K", Jan, 28; On Location with "REVENGE OF THE PINK PANTHER", Jul, 652; Report from Photokina '78, Dec, 1168; VIth Tehran International Film Festival; The, Feb, 186; Unique New Exposure Meter that was Custom-designed for the Cinematographer, Sep, 876
Lipton, Lenny: Cinema in Depth—From Hollywood to Super-8 3-D, May, 474
Lyons, Paul M.: "OF TIME, TOMBS AND TREASURE"—The Editor's Viewpoint, Sep, 866

—M—
MacGillivray, Greg: Water Photography in "BIG WEDNESDAY", The, Jun, 556
McMillan, Dave: Filming of "JORDAN: PAST AND PRESENT", The, Mar, 292
Messenger, James R.: Of Time, Tombs and Tribulations, Sep, 860
Miller, William F.: Syncing in the Bermuda Triangle, Jun, 592
Mullins, Peter: Strictly by Design, Jul, 666

—O—
Onorato, Paul: Beach and Jungle Filming in Malaysia, Jun, 596

—R—
Richter, Kenneth: There's More to "Clear Pictures" than Meets the Eye!, Oct, 974
Ritsko, Alan J.: Rigging and Lighting a Location Courtroom, Aug, 802

—S—
Samuelson, David W.: Photography of "JULIA", The, Mar, 248
Scott, Ed: Lens Data Programing with a Hand Calculator, Apr, 360
Sell, Jack M.: Making a Super-8 Documentary . . . . The Hard Way, Apr, 370
Shetter, Michael D.: Videotape as Film, Sep, 900

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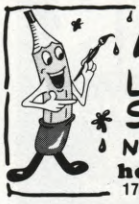

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Sirlin, Arnie: Photographing "OF TIME, TOMBS AND TREASURE", Sep, 864
Spielberg, Steven: Unsung Heroes or Credit Where Credit is Due, The, Jan, 68
Stulberg, Gordon: 1980 and Beyond—The Expanding Horizons of Theatrical Features, Aug, 774
Swedien, Bruce F.: Acoustonic Recording Process Makes Its Debut, The, Nov, 1082

—T—

Trumbull, Douglas: Creating the Photographic Special Effects for "CLOSE ENCOUNTERS OF THE THIRD KIND", Jan, 72
Turpin, Gerry: Lightflex: A Whole New World of Color on the Screen, Nov, 1086
Tyler, Three: Advertising: A Permanent Value, Mar, 288

—U—

Uhlig, R.E.: Sound of the Story, The, Aug, 782

—W—

Wales, Ken: Three Production Points of View, Jul, 663
Walton, Tony: Of Munchkins, Winkies and the Emerald City, Nov, 1074
Warner, Frank: Sounds of Silence and Things That Go "Flash" in the Night, Jan, 44
Werner, John D.: Editing Motion Picture Sound Tracks Using Ordinary 1/4" Magnetic Tape, Jul, 674
Wilson, Anton: Cinema Workshop: Camera Shutters II, Feb, 128; Electret Condenser Microphones, Jul, 634; Film Formats, Sep, 850; Hand Microphones, Aug, 746; Lenses—Arriflex 16BL and 16SR, Jun, 542; Lens Mounts, May, 442; Lighting for Television, Oct, 950; Pilotone, Dec, 1158; Shutters, Jan, 8; Shutters III, Mar, 234; Shutters IV, Apr, 342

—Z—

Zeper, Roy: Shooting a Super L-O-N-G Crawl Title, Mar, 271
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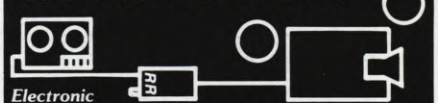
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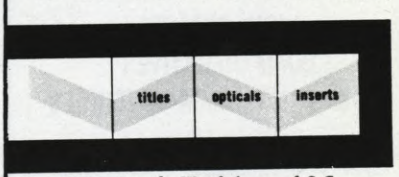

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WHAT'S NEW
Continued from Page 1154

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Model VE 1, employs the latest sophisticated electronic circuitry which assures repeatable, drift-free focus. Lenses from 9 mm to 300 mm can be accommodated by this unit. Due to its unique design, the follow focus system may be turned on and off at will without requiring re-initialization. In addition, a control has been added to correct focus for bi-packs and some liquid gates. The capability to do out-of-focus dissolves has also been added.

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Continued on Page 1248

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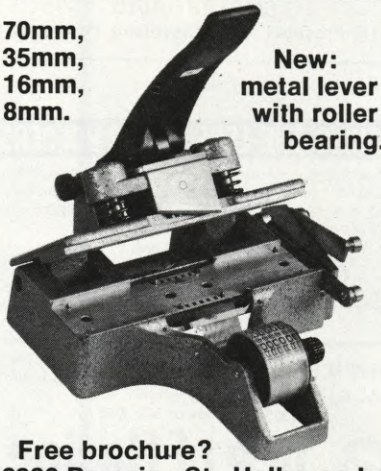

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Continued from Page 1246

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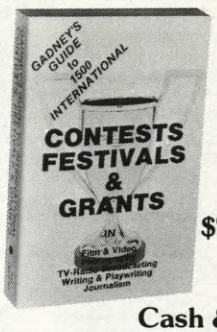

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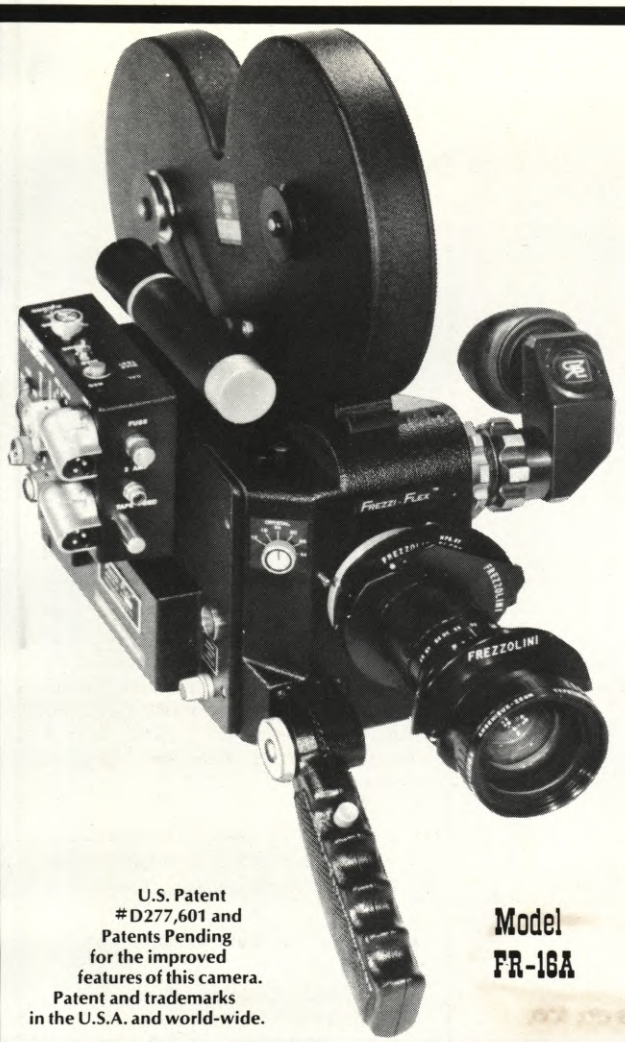

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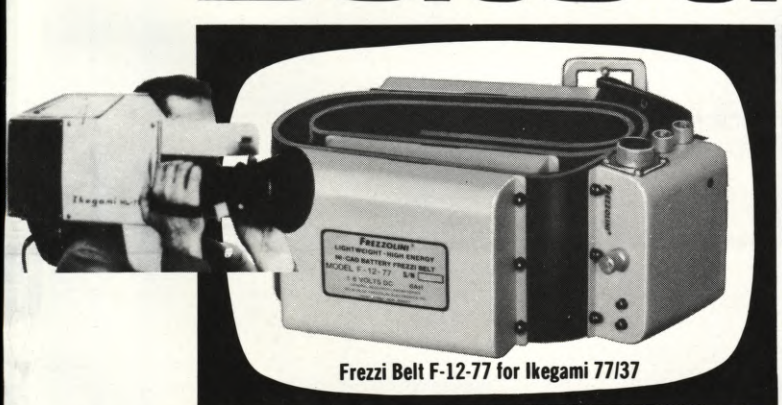

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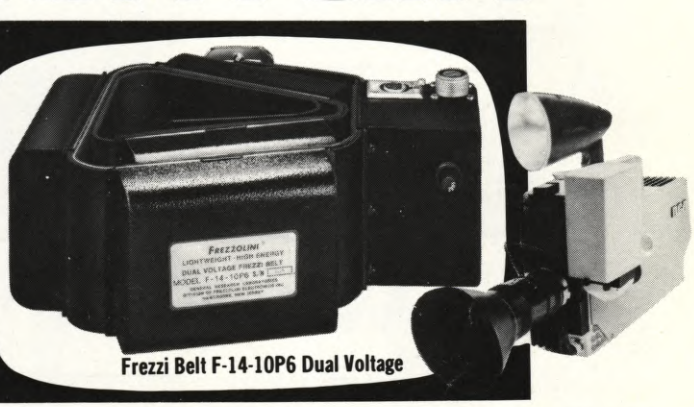

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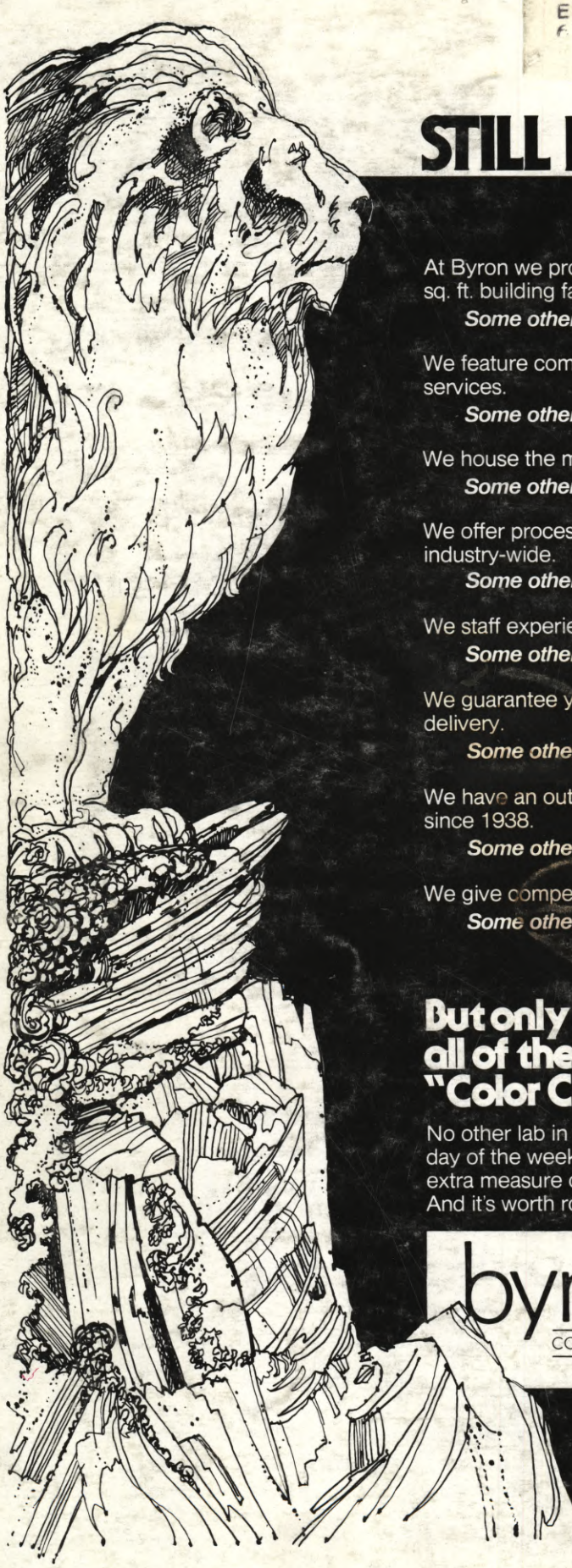

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